

CHAPTER 28

PHYSICAL THERAPY DEPARTMENT

STANDARD OPERATING PROCEDURE

500 BED FLEET HOSPITAL

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500 BED COMBAT ZONE HOSPITAL
STANDARD OPERATING PROCEDURES
PHYSICAL THERAPY DEPARTMENT

A. **MISSION:** To provide physical therapy services to combat casualties.

B. **FUNCTIONS:**

1. Perform neuromusculoskeletal evaluations on patients upon referral.

2. Develop and provide physical therapy treatment programs designed to promote the rapid recovery and return to full duty of the injured service member.

3. Develop and provide physical therapy treatment programs designed to minimize the disability suffered by a severely injured service member.

4. Incorporate the use of physical treatment programs and therapeutic modalities into the rehabilitation of injured service members.

C. **PHYSICAL DESCRIPTION:**

1. Operating Room.

(a) Location within complex:

(b) Sheltering.

Type: Expandable, hardwall shelters and temper tents.

Quantity: Three 3:1 ISO shelters, approximately three temper sections.

(c) Material.

IOL: 0041

2. Operating Room Support Space.

(a) Location within complex:

(b) Sheltering.

Type: Temper tent.

Quantity: Thirteen sections, shared.

(c) Material.

IOL: 0041

3. OR Prep and Hold Ward.

(a) Location within Complex:

(b) Sheltering.

Type: Temper tent.

Quantity: Nine Sections.

(c) Material.

IOL: 0041

4. Specialty Treatment Area.

(a) Location within Complex:

(b) Sheltering.

Type: Temper Tent.

Quantity: Three temper sections.

(c) Material.

IOL: 0041

5. Casualty Receiving Area.

(a) Location within Complex:

(b) Sheltering.

Type: Temper Tent.

Quantity:

(c) Material.

IOL: 0041

D. **SPECIAL CONSIDERATIONS:** N/A.

E. **WORKLOAD:**

1. Projected patient load for Operating Rooms.
 - (a) Steady State: 54 Cases/Day 34 Minor 20 Major
 - (b) Peak State: 80 Cases/Day 50 Minor 30 Major
2. Projected average work time per case.
 - (a) Evaluations - 20 - 30 minutes.
 - (b) Treatments - 20 - 30 minutes.
3. Hours of operation during steady state for the Operating Rooms.
 - (a) AM watch, 0700-1900 Monday - Saturday.
 - (b) AM watch, 0700-1900 Monday - Sunday.
4. Average length of patient stay in hospital: 3 to 5 days.

F. **ORGANIZATION:**

1. Responsibility. The Head, Physical Therapy Department, who reports to the Director of Surgical Services, is assigned overall management responsibility.

2. Organizational chart.

Director,
Surgical Services

Head, Physical
Therapy Department

Senior PT Tech

PT Techs
(14)

3. Staffing.

(a) Criteria.

(1) Ratio of staff/bed/unit/module required.

(2) Special qualifications required.

Physical Therapy Technicians must have 8466
NEC.

(b) Staffing pattern: Two 12 hour watches.

<u>Personnel Assigned</u>	<u>AM Watch</u>	<u>Night Watch</u>	<u>Total</u>
Medical Service Corps	1	*	1
HM	8	7	15

4. Assignments by Billet Sequence Code: See TAB A, page 8.

5. Watchbill: See TAB B, page 9.

6. Special Watches: N/A.

G. **TASKS:**

Task	Method
1. PERFORM NEURO- MUSCULOSKELETAL EVALUATIONS	1. May include: 1.1 Muscle strength testing. 1.2 Evaluation of neurological function. 1.3 Measurement of joint mobility. 1.4 Soft tissue examination. 1.5 Testing of the circulatory system. 1.6 Postural assessment. 1.7 Gait evaluation. 1.7.A Utilize assistive devices (crutches and canes) as available. 1.8 Respiratory system evaluation. 1.9 Brace and/or orthotic

- production/evaluation.
- 1.10 Electrophysiologic testing as indicated.
 2. DEVELOP TREATMENT PROGRAM
 referral
 initial
 evaluation.
 2. Develop a treatment program based upon the patients' condition, physician and results of the physical therapy
 3. UTILIZE PHYSICAL AGENTS
 in the
 These
 3. Utilize physical agents treatment of patients as indicated and available. may include:
 - 3.1 Heat.
 - 3.2 Cold.
 - 3.3 Electrical stimulation.
 - 3.4 Traction.
 - 3.5 Compression.
 4. UTILIZE EXERCISE PROGRAMS
 for
 4. Utilize exercise programs treatment of patients as indicated and as feasible. May include:
 - 4.1 Active to passive range of motion exercises.
 - 4.2 Progressive resistance strengthening exercises.
 - 4.3 Balance exercises.
 - 4.4 Coordination exercises.
 - 4.5 Endurance exercises.
 - 4.6 Postural correction.
 5. PERFORM DEBRIDEMENT OF WOUNDS AND BURNS
 6. ASSIST WITH

PULMONARY HYGIENE

- | | |
|--|--|
| 7. PROVIDE
REEVALUATIONS
remaining at
Hospital level. | 7. Provide timely reevaluations
for those patients
the Fleet |
| therapeutic
indicated. | 7.1 Update and progress
programs as |
| 8. PATIENT EDUCATION
PROGRAMS
burn
back/neck
extremity and
extremity injuries. | 8. Institute patient education
programs for patients with
injuries, amputations,
injuries, upper
lower |
| 9. STAFF EDUCATION
care,
principles, and
rehabilitation efforts. | 9.1 Institute staff education
programs for proper back
patient transfer
early |
| moral/recreation/
officer with support and
guidance in terms of maintaining
staff physical fitness
requirements. | 9.2 Assist the commands physical
fitness and
welfare |
| | 9.3 Develop a physical fitness
education program to assist
newly reporting staff. |
| 10. MAINTENANCE AND
REPAIR
maintenance. | 10.1 Schedule and assign duties to
staff technicians concerning
regular equipment |
| 11. PERFORM
supervision
personnel to
clinical and
administrative abilities. | 11.1 Provide training and
LEADERSHIP TASKS to assist assigned
advance their |
| with
departments. | 11.2 Maintain continuing liaison
other hospital |
| 12. PROVIDE
CONTINUING | 12.1 Provide orientation to the
Physical Therapy Department. |

EDUCATION

- duties.
- 12.2 Evaluate staff skills prior to assigning more complex
- 12.3 Cross-train personnel in all specialty and indirect care areas.
- 12.4 Provide senior personnel with experience in clinical administration, teaching, and supervision.
- 12.5 Conduct classes on special procedures, techniques, etc. required.
- as
- 12.6 Develop a program for the review and evaluation of patient care standards.
- ongoing
- 12.7 Maintain and increase the knowledge/skill level of physical therapy staff technicians by development of an ongoing series of educational programs.
13. PROVIDE SUPERVISION OF PERSONNEL
- 13.1 Provide performance counselling to all personnel on a continuing basis.
- 13.2 Provide a mechanism to account for the appropriate of physical in the supervision therapy technicians performance of their clinical duties.
- 13.3 Maintain physical therapy staff awareness and education concerning the roles and responsibilities of within a Fleet functioning Hospital (hostile) environment.

H. **STANDARD OPERATING PROCEDURES:** See TAB C, page 11.

I. **CLINICAL POLICIES/GUIDELINES:** See TAB D, page 98.

J. **STANDARDS AND JOB DESCRIPTIONS:** See TAB E, page 101.

K. **DOCUMENTATION:**

1. References: See TAB F, page 115.

2. Forms: See TAB G, page 116

TAB A

ASSIGNMENTS BY BILLET SEQUENCE NUMBER

Department: Physical Therapy

Billet Watch Number	Title	Designator/ Spec. Code	Rank/ Rate	Section
77029	Head, Physical/OCC Therapy Department	2300/1873E	0-3	1
77019	PT Tech	0000/HM	E-6	1
77039	PT Tech	0000/HM	E-5	1
77041	PT Tech	0000/HM	E-5	2
77043	PT Tech	0000/HM	E-5	1
77045	PT Tech	0000/HM	E-5	2
77047	PT Tech	0000/HM	E-5	1
77049	PT Tech	0000/HM	E-5	2
77059	PT Tech	0000/HM	E-4	1
77061	PT Tech	0000/HM	E-4	2
77063	PT Tech	0000/HM	E-4	1
77065	PT Tech	0000/HM	E-4	2
77067	PT Tech	0000/HM	E-4	1
77069	PT Tech	0000/HM	E-4	2
77079	PT Tech	0000/HM	E-4	1
77081	PT Tech	0000/HM	E-4	2

* NOTE 1. Head, Physical Therapy Department will be on call at night.

TAB B

WATCH BILL FOR PHYSICAL THERAPY DEPARTMENT

Section	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F
S S																			
77029	A	A	A	A	A	A	A	E	A	A	A	A	A	A	A	E	A	A	A
A A																			
77019	A	A	A	A	A	E	A	A	A	A	A	A	A	E	A	A	A	A	A
A A																			
77039	A	A	A	E	A	A	A	A	A	A	A	E	A	N	N	N	N	N	N
E A																			
77041	N	N	E	N	N	N	N	N	N	N	E	A	A	A	A	A	A	A	E
N N																			
77043	A	A	A	A	E	A	A	A	A	A	A	A	E	N	N	N	N	N	N
N E																			
77045	N	N	N	E	N	N	N	N	N	N	N	E	A	A	A	A	A	A	A
E N																			
77047	A	A	A	A	A	E	A	A	A	A	A	A	A	E	N	N	N	N	N
N E																			
77049	N	N	N	N	E	N	N	N	N	N	N	N	E	A	A	A	A	A	A
A E																			
77059	A	A	E	A	A	A	A	A	A	A	E	N	N	N	N	N	N	N	E
A A																			
77061	N	N	N	N	E	N	N	N	N	N	N	N	E	A	A	A	A	A	A
A E																			
77063	N	E	A	A	A	A	A	E	A	A	A	A	A	A	A	E	N	N	
N N N																			

77065
E N N N N E N N N N N N N E A A A A A A A A

77067
N E A A A A E A A A A A A A E N N N N N N

77069
A E N N N N N E N N N N N N N E A A A A A

77079
E A A A A E A A A A A A A E N N N N N N N

77081
N N N E N N N N N N N E A A A A A A A E

KEY:

A = AM watch (0700-1900).

N = Night watch (1900-0700).

E = Excused.

* = Call.

TAB C
PROCEDURES
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TAB C-1

CARDIAC ARREST PROCEDURE

A. **POLICY:** In the event of sudden cessation of breath, heartbeat, or both, every effort shall be made to re-establish respiratory and/or circulatory function as soon as possible. Cardiopulmonary resuscitation shall be initiated in each incident, unless counter-manded by a medical officer or by written order in the patient's record.

B. **PROCEDURE:**

1. After assessment of cardiac or respiratory arrest is made, immediately initiate basic life support.

(a) Verify unresponsiveness.

(b) Call for help.

(c) If unresponsive, open the airway.

(d) Check for breathing.

(e) If not breathing, give two (2) full ventilations, one (1) to one and one half (1 1/2) seconds each.

(f) Check carotid pulse.

(g) If pulse is absent, start chest compressions, 80 - 100 per minute.

2. Have second or third person bring emergency equipment to the scene:

(a) Emergency Cardio Resuscitation Kit.

(b) Oxygen cylinder.

(c) Suction machine with all catheters attached.

3. Members of arrest team will:

(a) Perform chest compression (one member).

(b) Manage airway and do ventilations (one member).

(c) Start an IV.

(d) Draw up and administer medications as directed by ACLS certified member or Medical Officer. (One member.)

(e) Recorder will document arrest on Cardiac Arrest Flow Sheet. This member will be the same throughout the emergency.

C. **VITAL POINTS:**

1. Basic life support must not be interrupted for more than 5 seconds.

2. Advanced life support is only effective if proper basic life support is initiated and maintained.

3. Complete specific nursing notes showing the exact time events were done IAW TAB J-8.

D. **EDUCATION REQUIREMENTS:**

1. All medical personnel must maintain Basic Cardiac Life Support (BCLS) certification.

2. All medical officers and Critical Care Area Nurses should maintain advanced Cardiac Life Support (ACLS) certification.

3. CPR drills will be conducted monthly on all nursing wards in order to assure medical personnel awareness of their role in a code.

E. **RESPONSIBILITY:**

The Medical Officer on treatment team.

F. **REFERENCE:**

Advanced Cardiac Life Support (ACLS) Interim Guideline be the American Heart Association.

TAB C-2

DEFIBRILLATION

A. **PURPOSE:** To terminate ventricular fibrillation immediately, facilitating the establishment of an effective cardiac rhythm. This is the first and only treatment for ventricular fibrillation.

B. **DEFINITION:** Also known as precordial shock, it is the conduction of an electrical impulse into the heart to depolarize cardiac muscle and convert fibrillation rhythm into normal sinus rhythm.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**

1. Defibrillator with external paddles.
2. Batteries.
3. ECG monitor with recorder.
4. Conductive medium.
5. Cardio Resuscitation Kit (Sparks Kit).
6. Oxygen therapy equipment.
7. Airways.
8. Endotracheal Anesthesia Set.
9. AMBU bag.
10. Suctioning equipment.

D. **CRITERIA:**

1. Conversion of an abnormal rhythm following a precordial thump or cough has been well demonstrated in patients with ventricular tachycardia and complete heart block. Recently, it has been demonstrated as well for ventricular fibrillation. Because the speed of defibrillation is critical, a solitary precordial thump is recommended for all witnessed cardiac arrests when a defibrillator is unavailable. When a precordial thump is used in patients who have ventricular tachycardia and a pulse, a defibrillator should be available since ventricular fibrillation can be induced. A precordial thump is delivered to the center of the sternum with the hypothenar aspect of the fist and from a height of no more than 12 inches.

2. Defibrillator battery will be charged and ready to use at all times.

3. Person in charge of the arrest will insure all personnel stand clear so that only the patient will receive the electrical current when "ALL CLEAR" is called.

E. **STEPS:**

1. Initiate basic cardiac life support (BCLS) and summon defibrillation equipment and assistance.

2. Verify ventricular fibrillation by ECG. Correlate with the clinical state of patient.

(a) Establish an airway or use existing endotracheal tube if in place.

(b) Perform external cardiac massage until defibrillator is ready. In the OR, internal cardiac massage may be necessary.

(c) When patients are monitored and defibrillation equipment is available, proceed with defibrillation.

3. Prepare to defibrillate.

(a) Obtain battery operated defibrillator.

(b) Check battery level.

(c) Prepare defibrillator paddles by covering entire metal surface with conductive medium. (The conductive medium is needed to reduce skin resistance to current flow, prevent skin burns, and allow for optimal current flow to the myocardium.)

(d) Dial 200 watts/seconds (Joules).

(e) Activate charge button to charge unit with electrical current.

(f) Validate that defibrillator unit is in the non-synchronized mode so machine will fire correctly.

(g) Place paddles firmly into position against chest wall using 25-30 pounds of pressure.

(1) Best position - transverse position.

a Place one paddle at 2nd intercostal space

right of sternum.

b Place second paddle at 5th intercostal space mid-clavicular line, left of sternum.

(2) Alternate position - anterior-posterior position.

a Place one paddle at anterior-precordial area.

b Place 2nd paddle at posterior-intrascapular area.

(h) Recheck ECG rhythm on cardioscope to validate Ventricular fibrillation pattern.

(i) Give command to stand clear of bed/litter/OR table prior to defibrillation to minimize risk of micro or macro shock to staff.

4. Defibrillate the patient.

(a) Depress the discharge button while simultaneously keeping both paddles in place until the electrical current is delivered.

(b) Check ECG rhythm on cardioscope for changes in pattern.

(1) If ventricular fibrillation persists, repeat defibrillation immediately.

(2) Continue CPR during any delays in defibrillation.

(3) If a second attempt is unsuccessful, immediately defibrillate with up to 360 Joules.

(4) If the ECG monitor shows an organized rhythm, check for a pulse. Continue CPR if no pulse present.

(5) If unsuccessful, continue with current ACLS protocol.

VENTRICULAR FIBRILLATION^a

This sequence was developed to assist in teaching how to treat a broad range of patients with ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT). Some patients

may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. The flow of the algorithm presumed that VF is continuing. CPR indicates cardiopulmonary resuscitation.

<u>Witnessed Arrest</u>	<u>Unwitnessed Arrest</u>
Check pulse - If no pulse pulse	Check pulse - If no
Precordial Thump	
Check pulse - If no pulse	
CPR until a defibrillator is available	
Check monitor for rhythm - if VF or VT	
Defibrillate, 200 Joules ^b	
Defibrillate, 200-300 Joules ^b	
Defibrillate with up to 360 Joules ^b	
CPR if no pulse	
Establish IV access	
Epinephrine, 1:10,000, 0.5-1.0 mg IV push ^c	
Intubate if possible ^d	
Defibrillate with up to 360 Joules ^b	
Lidocaine, 1 mg/kg IV push	

Defibrillate with up to 360 Joules ^b

Bretylium, 5mg/kg IV push ^e

(Consider Bicarbonate)^f

Defibrillate with up to 360 Joules ^b

Bretylium, 10 mg/kg IV push ^e

Defibrillate with up to 360 Joules ^b

Repeat Lidocaine or Bretylium

Defibrillate with up to 360 Joules ^b

NOTES:

1. Pulseless ventricular tachycardia should be treated identically to ventricular fibrillation.
2. Check pulse and rhythm after each shock. If VF recurs after transiently converting (rather than persists without ever converting), use whatever energy level has previously been successful for defibrillation.
3. Epinephrine infusion should be repeated every five (5) minutes.
4. Intubation is preferable. If it can be accomplished simultaneously with other techniques, then the earlier the better. However, defibrillation and epinephrine are more important initially if the patient can be ventilated without intubation.
5. Some may prefer repeated doses of lidocaine, which may be given in 0.5 mg/kg doses every 8 minutes to a total dose of 3 mg/kg.
6. The value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for the routine cardiac arrest sequence. Consideration of its use in a dose

of 1 mEq/kg is appropriate at this point. One half of the original dose may be repeated every 10 minutes if it is used.

SUSTAINED VENTRICULAR TACHYCARDIA

This sequence was developed to assist in teaching how to treat a broad range of patients with sustained ventricular tachycardia (VT). Some patients may require care not specified herein. This algorithm should not be construed as prohibiting such flexibility. The flow of the algorithm presumes that VT is continuing. VF indicates ventricular fibrillation; IV, intravenous.

No Pulse

Treat as VF

Pulse Present

Stable

Unstable

O₂

O₂

IV Access

IV Access

Lidocaine,
1 mg/kg

(Consider sedation)^c

Lidocaine,
0.5 mg/kg every
8 min. until VT
resolves, or up
to 3 mg/kg.

Cardiovert,
50 Joules ^{d,e}

Cardiovert,
100 Joules ^d

Procainamide,
20 mg/min until
VT resolves, or
up to 1,000 mg.

Cardiovert,
200 Joules ^d

Cardiovert, with
up to 360 Joules ^d

Cardiovert as
in unstable
patients ^c

If recurrent, add
Lidocaine and
cardiovert again
starting at energy
level previously

successful; then
procainamide or
Bretylium.

NOTES:

1. If the patient becomes unstable (see Footnote b for definition) at any time, move to the "Unstable" arm of the algorithm.
2. Unstable = symptoms (e.g. chest pain, dyspnea), hypotension (systolic BP <90 mm Hg), congestive heart failure, ischemia, or infarction.
3. Sedation should be considered for all patients, including those defined in Footnote b as unstable, except those who are hemodynamically unstable (e.g., hypotensive, in pulmonary edema, or unconscious).
4. If hypotension, pulmonary edema, or unconsciousness is present, unsynchronized cardioversion should be done to avoid the delay associated with synchronization.
5. In the absence of hypotension, pulmonary edema, or unconsciousness, a precordial thump may be employed prior to cardioversion.
6. Once VT has resolved, begin an IV infusion of the antiarrhythmic agent that has aided the resolution of the VT. If hypotensive, in pulmonary edema, or unconscious, use lidocaine if cardioversion alone is unsuccessful, followed by bretylium. In all other patients, the recommended order of therapy is lidocaine, procainamide, and the bretylium.

ASYSTOLE (CARDIAC STANDSTILL)

This sequence was developed to assist in teaching how to treat a broad range of patients with asystole. Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes asystole is continuing. CPR indicates cardiopulmonary resuscitation; VF, ventricular fibrillation; IV, intravenous.

If rhythm is unclear and possibly ventricular
fibrillation, defibrillate as for VF.
If Asystole is present: ^a

Continue CPR

Establish IV access

Epinephrine, 1:10,000, 0.5-1.0 mg IV push ^b

Intubate when possible ^c

Atropine, 1.0 mg IV push (repeated in 5 min)

(Consider bicarbonate) ^d

Consider pacing

NOTES:

1. Asystole should be confirmed in two leads.
2. Epinephrine should be repeated every 5 minutes.
3. Intubation is preferable; if it can be accomplished simultaneously with other techniques, then the earlier the better. However, CPR and the use of epinephrine are more important initially if the patient can be ventilated without intubation. (Endotracheal epinephrine may be used.)
4. The value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for the routine cardiac arrest sequence. Consideration of its use in a dose of 1mEq/kg is appropriate at this point. One half of the original dose may be repeated every 10 minutes if it is used.

ELECTROMECHANICAL DISSOCIATION

This sequence was developed to assist in teaching how to treat a broad range of patients with electromechanical dissociation (EMD). Some patients may require care not specified herein. This algorithm should not be construed to prohibit such flexibility. The flow of the algorithm presumes that EMD is continuing. CPR indicates cardiopulmonary resuscitation; IV, intravenous.

Continue CPR

Establish IV access

Epinephrine, 1:10,000, 0.5-1.0 mg IV push ^a

Intubate when possible ^b

(Consider bicarbonate) ^c

Consider Hypovolemia,
Cardiac Tamponade,
Tension Pneumothorax,
Hypoxemia,
Acidosis,
Pulmonary Embolism

NOTES:

1. Epinephrine infusion should be repeated every 5 minutes.
2. Intubation is preferable. If it can be accomplished simultaneously with other techniques, then the earlier the better. However, epinephrine is more important initially if the patient can be ventilated without intubation.
3. The value of sodium bicarbonate is questionable during cardiac arrest, and it is not recommended for the routine cardiac arrest sequence. Consideration of its use in a dose of 1 mEq/kg is appropriate at this point. One half of the original dose may be repeated every 10 minutes if it is used.

PAROXYSMAL SUPRAVENTRICULAR TACHYCARDIA

This sequence was developed to assist in teaching how to treat a broad range of patients with sustained PSVT. Some patients may require care not specified herein. This algorithm should be not construed as prohibiting such flexibility. The flow of the algorithm presumes PSVT is continuing.

Unstable

Synchronous Cardioversion
75 - 100 Joules

Synchronous Cardioversion
200 Joules

Stable

Vagal Maneuvers

Verapamil, 5 mg IV

Synchronous Cardioversion
360 Joules

Verapamil, 10 mg IV
(in 15-20 min)

Correct underlying abnormalities Cardioversion, Digoxin
B-Blockers, Pacing as
indicated

Pharmacological Therapy -
Cardioversion

If conversion occurs but PSVT recurs, repeated electrical
cardioversion is not indicated. Sedation should be used as
time permits.

BRADYCARDIA

This sequence was developed to assist in teaching how to
treat a broad range of patients with bradycardia. Some
patients may require care not specified herein. This
algorithm should not be construed to prohibit such
flexibility. A-V indicates atrioventricular.

Slow Heart Rate (<60 beats/min) ^a

Sinus or Degree Junctional	Second Degree A-V Block Type I	Second Degree A-V Block Type II	Third A-V Block
----------------------------------	--------------------------------------	---------------------------------------	--------------------

Signs or Symptoms ^b

Signs or Symptoms ^b

No

Yes

No

Observe
Transvenous

Atropine, 0.5-1.0 mg

Pacemaker

Continued Signs and Symptoms ^b

No	Yes
For Second Atropine, 0.5-1.0 mg. Degree Type II or Third Degree:	For Second Degree Type I, sinus or junctional: Repeat
Transvenous Pacemaker	Observe Continued Signs/Symptoms ^b Yes External Pacemaker ^c or Isoproterenol, 2-10 mg/min ^c Transvenous Pacemaker

NOTES:

1. A solitary chest thump or cough may stimulate cardiac electrical activity and result in improved cardiac output and may be used at this point.
2. Hypotension (BP <90 mm Hg), PVCs, altered mental status or symptoms (e.g., chest pain, dyspnea), ischemia, or infarction.
3. Temporizing therapy.

VENTRICULAR ECTOPY:
ACUTE SUPPRESSIVE THERAPY

This sequence was developed to assist in teaching how to treat a broad range of patients with ventricular ectopy. Some patients may require therapy not specified herein. This algorithm should not be construed as prohibiting such flexibility.

Assess for need for

Acute Suppressive Therapy

Rule out treatable cause

Consider serum potassium

Consider digitalis level

Consider bradycardia

Consider drugs

Lidocaine, 1 mg/kg

If not suppressed, repeat lidocaine,
0.5 mg/kg every 2-5 min. until no ectopy,
or up to 3 mg/kg given

If not suppressed, procainamide 20 mg/min
until no ectopy, or up to 1,000 mg given

If not suppressed, and not contraindicated,
bretylium, 5-10 mg/kg over 8-10 min.

If not suppressed, consider overdrive pacing

Once ectopy resolved, maintain as follows:

After Lidocaine, 1 mg/kg Lidocaine drip, 2 mg/min

After Lidocaine, 1-2 mg/kg Lidocaine drip, 3 mg/min

After Lidocaine, 203 mg/kg Lidocaine drip, 4 mg/min

After Procainamide Procainamide drip, 1-4 mg/min (check
bloodlevel)

After Bretylium Bretylium drip, 2 mg/min

Assess patient status and precipitating factors to prevent further decompensation of the patient.

5. Provide post defibrillation care.

(a) Perform a complete basC-line physical assessment of patient. Assess vital signs, peripheral pulses, respiratory pattern, and level of consciousness.

- (b) Monitor ECG rhythm watching for arrhythmias.
 - (c) Obtain a 12 lead ECG to assess myocardial damage.
 - (d) Administer oxygen to reduce hypoxemic state.
 - (e) Assess chest wall for any burns. Apply Silver Sulfadiazine to any burned areas.
 - (f) Establish an IV line for medication administration, if not present.
 - (g) Administer prescribed medications IAW Physician Orders.
 - (1) Monitor drips of antidysrhythmic drugs (lidocaine) carefully.
 - (2) Observe patient and ECG pattern for medication effects.
6. Document defibrillation on Cardiac Arrest Flow Sheet. Record the following:
- (a) Ventricular fibrillation was observed on monitor. If available, include prC-defibrillation ECG rhythm strip.
 - (b) Number of times defibrillation was attempted.
 - (c) Voltage used with each attempt.
 - (d) Post-defibrillation ECG rhythm. Include an ECG rhythm strip if available.
 - (e) Physiological multisystem status.
 - (f) Death.

F. **PRECAUTIONS:**

1. Check that equipment is properly grounded to prevent current leakage.
2. Disconnect other electrical equipment attached to patient to prevent possible equipment damage from the voltage surge.
3. Use conductive medium on paddles conservatively to prevent over arcing of the current flow to the patient.
4. Clean defibrillator of remaining electrical current

immediately after use. Never set charged defibrillator paddles down.

5. Check that defibrillator is in non-synchronized mode such that it is not dependent upon an R wave to trigger defibrillation.

G. **COMPLICATIONS:**

1. Dysrhythmias.
2. Cardiac arrest.
3. Respiratory arrest.
4. Neurological impairment.
5. Altered skin integrity.
6. Pulmonary edema.
7. Pulmonary or systemic emboli.
8. Equipment malfunction.
9. Death.

H. **RESPONSIBILITY:**

1. Medical Officer will defibrillate the patient.
2. Nurse will administer medication, assist with CPR, and record the information in the patient's chart.
3. Hospital Corpsman will inspect and maintain the defibrillator equipment and supplies in working order. Supplies for the Sparks Kit will be obtained from Material Management Department.

I. **REFERENCE:**

1. Interim Guideline for Advanced Cardiac Life Support (ACLS), The American Heart Association.
2. Textbook of Advanced Cardiac Life Support (ACLS), The American Heart Association.

TAB C-3

ROUTINE MEDICATION TIMES

A. **PURPOSE:** To standardize medication administration times so that nursing service and pharmacy can perform this task most efficiently.

B. **SCHEDULE:**

1. Routine times.

- (a) qd 0900
- (b) bid 0900-2100
- (c) tid 0600-1400-2200
- (d) qid 0600-1200-1800-2400
- (e) q4hr 0200-0600-1000-1400 etc
- (f) q6hr 0600-1200-1800-2400
- (g) q8hr 0600-1400-2200
- (h) q3hr 0300-0600-0900 etc
- (i) q12hr 0600-1800
- (j) qhs 2200
- (k) Daily insulin 0700.
- (l) Insulin sliding scale 0700-1100-1600-2100.

2. Special considerations for adjusting times:

- (a) Triple IV antibiotics are ordered.
- (b) Diuretics are ordered: best to administer before 2200.
- (c) Oral antibiotics scheduled for 2400 should be given at 2200 so sleep is not interrupted.

C. **CRITERIA:**

1. Medications will be given at routine times unless adjusted for reason specified.

D. **STEP:**

1. Complete medication cards and MAR sheet with times stated above.

2. For medication times differing from the routine, note this in margin of Doctor's Orders Sheet, SF 508, prior to sending to Pharmacy.

E. **RESPONSIBILITY:**

Charge Nurse.

TAB C-5

ORDERING NON-AMBULATORY PATIENT MEALS

A. **PURPOSE:** To stipulate specific uniform requirements for ordering meals for bed-ridden patients.

B. **DEFINITION:** N/A.

C. **CRITERIA:** Non-ambulatory patient meals are ordered accurately and in time.

D. **STEPS:**

1. Prepare a ward diet roster by 0400 each day. Supplies of rosters must be maintained on each ward and may be obtained from operating management service.

2. Complete form as indicated, providing at minimum, patient name, assigned bed and diet order.

3. Enter any special requirements as indicated.

4. Make diet changes by calling food service. Changes will be accepted up to:

(a) 0400 for Breakfast.

(b) 0900 for Lunch.

(c) 1400 for Supper.

TAB C-6

HAZARDOUS WASTE

A. **PURPOSE:** To provide guidance for the collection, handling and disposal of hospital generated wastes which have contacted living organisms or may otherwise be considered infectious or hazardous.

B. **DEFINITION:**

1. Background: The operation of health care facilities creates waste materials, some of which are hazardous. A subset of hazardous waste is infectious waste; proper handling of infectious waste is mandatory, to prevent spread of infectious diseases. The methods of handling infectious waste, from its generation to its ultimate disposal, must be adhered to strictly by all hands, without exception.

2. Relationship with Host Nations: It is anticipated that the hospital will be operating, in a wartime or conflict mode, on foreign soil. Close liaison with force planners during the prC-deployment planning phase is essential for the hospital command to determine host nation requirements for handling, storage and disposal of infectious hazardous wastes.

Whenever possible, agreements and/or contracts with host nations should be secured for the incineration or sanitary burial of wastes in accordance with the host nation's regulations. During peacetime exercises on U.S. soil, adherence to federal, state and local environmental laws and regulations, partially listed in Appendix A, shall be strictly enforced.

3. Categories of Hospital Generated Waste: It must be clearly understood that the field hospital will generate four distinct categories of waste. Each type will require special handling procedures from generation to disposal. These categories are:

(a) Infectious waste - generated in patient contact, laboratory and surgical areas.

(b) Hazardous waste - usually chemical in nature and generated in the Laboratory, X-ray and Public Works department.

(c) Infectious hazardous waste - generated in the laboratory.

(d) Non-infectious waste - generated in all areas of the hospital.

4. Definitions.

(a) Infectious waste is defined as waste originating from the diagnosis and treatment of people. There are five (5) broad categories of infectious waste recognized by the Centers for Disease Control (CDC): microbiological, blood and blood products, pathological, sharps, and isolation waste. Examples of each of these types include, but are not necessarily limited to, the following:

(1) Microbiological - wastes generated in laboratories processing bacterial, fungal, mycobacterial, or viral materials, such as media-containing plates, tubes, or diagnostic strips; swabs; glass slides; pipettes. Live virus vaccines (including smallpox, yellow fever, rubella, measles, mumps, polio, and adenovirus) and any of the associated equipment for their use also fall into this classification.

(2) Blood and blood products - wastes generated in the collection processing, and use of blood and blood products; tubes for diagnostic blood collection; items and materials contaminated with blood or blood products that are not designed for cleaning, resterilization, and reuse.

(3) Pathological - pathologic specimens, body tissues, contaminated disposable instruments, and laboratory waste generated in the performance of medical treatment procedures and diagnostic laboratory testing.

(4) Sharps - any diagnostic or therapeutic item possessing a surface capable of piercing human skin, not designed for cleaning, resterilization, and reuse. Examples would include needles for injections, preparation of intravenous medicinals, indwelling cannulae, and diagnostic testing (e.g., lumbar puncture, thoracentesis, paracentesis, etc.); scalpels; and other disposable instruments with a surface capable of piercing human skin.

(5) Isolation waste - wastes generated in the therapy of patients on isolation precautions. Examples would include gowns; gloves; masks; head covers; dressings; disposables basins; paper towels used in isolation rooms; and other such items and materials used in the care of isolation patients that are not designed for cleaning, resterilization, and reuse.

(b) Fomites - an object or item that is not of itself harmful, but may harbor pathogenic microorganisms and serve as a vehicle in the transmission of infections. Examples would include but are not limited to bedding, linen, cloth towels and washrags, diagnostic medical instruments (e.g., stethoscopes, sphygmomanometers, thermometers), and personal

items (e.g., razors, toothbrushes, toiletries).

(c) Hazardous waste - any wastes, or combination of wastes, which because of its quantity, concentration, physical or chemical properties may pose a substantial present or potential threat to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed.

(d) Infectious hazardous waste - any combination of materials and agents that meet the definitions described in 2-4.a. and 2-4.c. above. These wastes will typically be generated in the laboratory when organic pathogens are combined with hazardous chemicals or reagents.

(e) Non-infectious waste - waste generated from non-clinical spaces and waste from patients and their related procedures, where no infection or contagious disease exists.

(f) Storage - the holding of infectious hazardous waste for a temporary period, at the end of which the waste is treated, disposed of, or stored elsewhere.

(g) Treatment - any method, technique, or process designed to change the chemical, physical, or biological characteristics of any infectious hazardous waste so as to render such waste nonhazardous, or less hazardous or safer for transportation, storage or disposal.

(h) Autoclave - an apparatus using steam under pressure for sterilizing medical equipment.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:** N/A.

D. **CRITERIA:**

Hazardous waste is properly handled and disposed.

E. **STEPS:**

1. Handling.

(a) Infectious and infectious hazardous waste.

(1) Ward and laboratory personnel shall utilize personal protective clothing and procedures which would normally be practiced in a traditional health care setting for the control of the spread of disease.

(2) Personnel shall wear disposable gloves, gowns, and shoe and hair covers.

(3) Patient contact and laboratory areas will utilize clearly marked, impervious, containers for the disposal of all sharps. When full, the sharps container shall be securely closed with autoclave tape.

(4) Patient areas will utilize clearly marked containers lined with double plastic bags, the outer bag being an orange autoclavable "biological hazard" bag. These containers will be separate from non-infectious "trash" containers. When full, the inner bag will be sealed with autoclave tape. The outer bag will be sealed with filament reinforced tape and autoclave tape.

(b) Hazardous waste.

(1) Protective equipment, as described in DHHS (NIOSH) Publication No. 81-123, will be utilized by personnel handling hazardous waste.

(2) All hazardous waste will be containerized. Ideally, in the original container or containers designed for the collection of such wastes such as those provided with automated laboratory equipment.

(3) Containerized and transporting to storage areas will be accomplished by the waste generator (i.e., lab, x-ray, public works, etc.).

2. Transport and storage.

(a) Infectious waste.

(1) Ward personnel will deliver properly sealed sharps containers and double bagged infectious waste, to the laboratory temporary holding area, on a regularly scheduled basis. Ideally, this area will be one of low traffic and prohibitive to patient care, smoking, eating, and food or medicinal handling.

(2) Ideally, ward personnel will store and transport multiple bags of infectious waste in large, covered containers (i.e., "GI" cans with tight fitting lids). These containers shall be scrubbed with a germicidal solution at least once per shift or more often if grossly contaminated.

(3) Laboratory personnel will handle and routinely autoclave waste under steam pressure for a minimum of fifteen (15) minutes. After proper autoclaving, these wastes may be handled as noninfectious depending on host nation requirements.

(b) Hazardous waste.

(1) As noted in paragraphs 3-1 b.2, hazardous waste will be stored in their original containers or those designed for collection of such wastes.

(2) Waste generating personnel will containerize waste according to its chemical grouping such as lubricants, fuels, acids, alkalines, chlorinated hydrocarbons, etc. Containers will be tightly sealed and labeled.

(3) Storage areas will be at least 100 yards from the hospital compound and actual or potential potable water sources. Ideally, these areas will be elevated with natural drainage away from the hospital and water sources. Waste containers should be protected from the elements and the area clearly marked as "Hazardous Waste Storage."

3. Disposal.

(a) General. It must be understood that, in an operational situation, the methods of waste disposal range from ideal to undesirable. The following disposal methods are intended to guide the hospital command towards utilization of the best disposal method for any given situation.

(1) Host Nation Agreement - Under the Status of Forces Agreement the cognizant Commander-in-Chief (CINC) will negotiate with the host country for disposal services.

(2) The cognizant CINC will provide disposal services utilizing established logistical support channels within the theater of operations such as the Supply Battalion of the Force Service Support Group, or supply ships.

(b) Methods. In the absence of the preferred, above mentioned disposal methods, the following may be utilized.

(1) Nonhazardous/noninfectious waste (including properly autoclaved infectious waste).

a Burial in a pit as deep as organic equipment will allow and covered with at least two feet of earth. Burial pits should be at least 100 yards from the hospital compound and potable water sources.

b Burning by mixing with fuel oil until only ash remains. Ash should then be buried as above. Tactical consideration must be given to open burning as smoke may give away the hospitals location.

(2) Hazardous waste.

a Laboratory chemical waste which contains infectious, organic matter, is to be treated as hazardous as autoclaving of liquids in closed containers is not authorized.

b Burial in sealed, marked containers, as deep as organic equipment will permit. Burial sites should be lined with plastic sheeting, covered with at least four feet of earth and conspicuously marked. Sites should be at least 100 yards from the hospital compound and potable water sources.

F. **RESPONSIBILITY:**

1. The Commanding Officer is responsible for ensuring the proper management of the overall infectious and hazardous waste program and to interface with the host nation to ensure local regulations are satisfied.

2. Nursing Service via the clinical staff is responsible for the handling of all wastes generated in clinical spaces. This includes ensuring that adequate supplies of hampers, bags, tapes, sharps containers, and protective clothing are maintained in these spaces.

3. Laboratory Service is responsible for handling hazardous infectious wastes once it is delivered to or generated by the laboratory. The service is also responsible for proper autoclaving of such wastes to render it free from pathogens.

4. Surgical Service is responsible for handling wastes generated within the operating room giving special attention to surgically removed human tissue.

5. Operating Management is responsible for the removal of waste from the central collection points, including the laboratory, and delivery to the designated pickup area such as the "back loading dock."

6. Public Works Department is responsible for the removal of wastes from the hospital compound and ensuring its proper disposal as outlined in this SOP.

TAB C-7

**PATIENT PROCEDURES FOR HANDLING
EXPATRIATED PRISONERS OF WAR**

A. **PURPOSE:** To detail patient handling procedures for expatriated prisoners of war within the fleet hospital.

B. **DEFINITION:**

Expatriated prisoners of war (EPW) - those patients who require treatment who are prisoners of U.S. or allied combat forces.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**

1. Restraints (theater command military police or hospital issue).

2. Others as specified in admission procedures (all forms will be marked with the words "Prisoner of War" or "EPW").

D. **STEPS:**

1. Upon presentation of EPW to functional area, notify Security Department.

2. Upon admission to Casualty Receiving, Security will be responsible for the following notifications:

(a) Theater command military police (MP) headquarters.

(b) Executive Officer.

(c) Director of Nursing.

(d) Director of Administration.

3. Perform essential life saving care.

4. Inform MP that custody of patient will not be assumed by hospital staff and that MP will retain custody of EPW until relieved by appropriate MP headquarters staff or patient is transferred to EPW holding center (external to hospital).

5. After treatment, have corpsman or litter bearer escort MP and EPW to next functional area charge nurse. Admissions packet, correctly annotated will be delivered by hand to charge nurse.

6. During course of treatment, patient will be guarded by

MP and/or restrained until treatment is terminated.

7. Movement to another functional area will be reported to Security.

8. EPW's will be fed either on the ward or in the general mess. If allowed to eat in the general mess, EPW's will be accompanied by MP guards.

E. **RESPONSIBILITY:**

CMAA/Security.

TAB C-8

**PROCEDURES FOR RELEASE OF
MEDICAL INFORMATION**

- A. **PURPOSE:** To provide procedures of release of medical information within the hospital.
- B. **DEFINITION:** Medical Information - Information contained in the health or dental record of individuals who have undergone medical examination or treatment.
- C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:** N/A.
- D. **STEPS:**

Upon presentation of requests for medical information refer to procedures contained in the following references:

- (1) Manual of the Medical Department, Chapter 23.
- (2) Freedom of Information Act, BUMEDINST 5720.8.
- (3) Personal Privacy and Rights of Individuals Regarding Records, SECNAVINST 5211.5.
- (4) Availability of Navy Records, Policies, SECNAVINST 5720.42.

E. **GENERAL GUIDELINES:**

1. Information contained in health care records of individuals who have undergone medical or dental examination or treatment is personal to the individual and is therefore considered to be of a private and confidential nature. Information from such health care records, the disclosure of which would constitute a clearly unwarranted invasion of personal privacy, should not be made available to anyone except as authorized by the patient or as allowed by the provisions of Manual of the Medical Department and the Privacy Act of 1974 as implemented by SECNAVINST 5211.5 series.
2. Release of information will be coordinated by the Patient Affairs Officer.
3. Personal information of non-medical nature will not be released.
4. personnel in the patients chain of command may be provided with information required to conduct command business but will be referred to the Patient Affairs Office.

5. Release of information will conform to local command and superior command policy.

6. All Department Heads shall ensure wide dissemination of this information and compliance with procedures outlined herein.

F. **RESPONSIBILITY:**

1. Director of Administration.
2. Patient Affairs Officer.
3. Charge Nurse or Assistant.

TAB C-9

PROCEDURE FOR PICK-UP AND DELIVERY OF HOSPITAL LAUNDRY

A. **PURPOSE:** It will be logistically impossible to pick up and deliver laundry at each individual ward and CSR. Therefore, this procedure establishes central collection points and the methodology for preparing laundry for turn-in.

B. **DEFINITIONS:** N/A.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**

1. Canvas laundry bags.
2. Request for clean linen/laundry.

D. **CRITERIA:** N/A.

E. **STEPS:**

1. Designated Laundry Petty Officer will:

(a) Set up laundry bags, tagging one for bed linen, one for clothing (including patient clothing), and one for contaminated laundry.

(b) Daily at 0800, take the soiled laundry to the nearest Clinical Work Space along with a request for the next day's linen/laundry supply.

(c) Distribute cleaned patient clothing.

2. Linen Control Clerks.

(a) Pick-up and receipt for hospital laundry at each Clinical Work Space.

(b) Collect Requests For Clean Linen/Laundry.

(c) Fill requests submitted the previous day and return cleaned patient clothing.

TAB C-10

PROCEDURE FOR HANDLING AND LAUNDERING CONTAMINATED LINENS

A. **PURPOSE:** The Combat Zone Fleet Hospital will generate a significant amount of contaminated linen within the operating rooms and treatment wards. These items will require special handling and laundering to prevent the spread of infection.

B. **DEFINITION:** Contaminated laundry is defined as those items requiring special disinfection and laundering to preclude the spread of infection.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**

1. Chlorine bleach solution.
2. Latex gloves.

D. **CRITERIA:** N/A.

E. **STEPS:**

1. Hospital ward personnel will bag contaminated laundry separate from regular laundry. Gloves are to be worn when handling contaminated laundry.

2. Contaminated laundry will be receipted by the Linen Control Clerks and delivered to the laundry.

3. At the Laundry all contaminated laundry will be segregated from that requiring only routine processing.

4. Based on the next day's requirements and current inventory the contaminated laundry will be assigned a processing priority.

5. The contaminated laundry will be processed as follows:

(a) Presoak the contaminated laundry for 60 minutes in a chlorine solution of 50 ppm.

(b) Wash the linen in hot water using a normal cycle.

6. Once laundered these items will be placed in inventory for rC-issue.

F. **RESPONSIBILITY:**

The Head, Environmental Health Department is responsible for routinely monitoring the handling and laundering of contaminated items to preclude the spread of infections.

CAUTION: Extreme care must be taken to avoid contact with the contaminated laundry to prevent the spread of infection to laundry and other hospital personnel.

TAB C-11

PATIENT DIAGNOSIS AND PHYSICAL THERAPY
TREATMENT INTERVENTION

A. ORTHOPAEDIC INJURIES.

1. Cervical spine injury (without fracture, dislocation or cord injury) or neck injury.

Therapeutic intervention with heat, cold, electrical stimulation or manual traction. The use of mobilization techniques, range of motion exercises, strengthening exercises, and postural correction exercises. Patient education in the care and protection of the cervical spine.

2. Thoracic spine injury (without fracture, dislocation or cord injury) or mid back injury.

Therapeutic intervention with heat, cold, or electrical stimulation. The use of mobilization techniques, range of motion exercises, strengthening exercises, and postural correction exercises. Patient education in the care and protection of the thoracic spine.

3. Lumbar spine injury (without fracture, dislocation, or cord injury) or low back injury.

Therapeutic intervention with heat, cold, electrical stimulation, or positional traction. The use of mobilization techniques, range of motion exercises, strengthening exercises, and postural correction exercises. Patient education in the care and protection of the lumbar spine.

4. Shoulder injuries.

Possible therapeutic interventions include use of heat, cold or electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Fitting the patient with a sling or swath. Patient education in the care and prevention of shoulder injuries.

5. Elbow injuries.

Possible therapeutic interventions include the use of heat, cold, or electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Fitting the patient with a sling, splint, or orthotic. Patient education in the care and prevention of elbow injuries.

6. Wrist and/or hand injuries.

Possible therapeutic interventions include the use of heat, cold, or electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Fitting the patient with a sling, splint or orthotic. Instruct patient in edema control with elevation and compressive wrap. Patient education in the care and prevention of wrist and hand injuries.

7. Hip injuries.

Possible therapeutic interventions include the use of heat, cold, or electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Assistance in ambulation with the use of crutches or a cane if needed. Patient education in the care and prevention of hip injuries.

8. Knee injuries.

Possible therapeutic interventions include the use of heat, cold, or electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Instructing the patient in the use of wrapping and elevation for edema control. Assistance in ambulation by fitting the patient with a splint and/or cane and crutches. Patient education in the care and prevention of knee injuries.

9. Ankle injuries.

Possible therapeutic interventions include the use of heat, cold, and electrical stimulation for pain control. The use of mobilization techniques, range of motion exercises, and strengthening exercises. Instructing the patient in the use of wrapping and elevation for edema control. Assistance in ambulation by splint fabrication, and the use of crutches or a cane. Patient education in the care and prevention of ankle injuries.

10. Extremity amputations.

Therapeutic intervention to include stump wound care. Start on early program of rehabilitation using compressive wraps for stump shaping. Range of motion exercises and positioning for remaining joints. Gentle strengthening and ambulation with assistive devices as needed. Patient education on care of the terminal appendage.

B. NEUROLOGICAL INJURIES.

1. Peripheral nerve injuries.

Therapeutic intervention may include range of motion and strengthening exercises. Fabrication of an orthosis or splint to protect the extremity and improve function. Education of patient in limb protection and self care.

2. Spinal cord injuries.

Therapeutic intervention limited to maintaining limb range of motion, maximizing self care ability, and maintaining skin integrity.

3. Brain injuries.

Therapeutic intervention limited to maintaining limb range of motion, maximizing self care ability, and maintaining skin integrity.

C. **DERMATOLOGIC INJURIES.**

1. Burn injuries.

Therapeutic intervention to include dressing changes, wound irrigation/hydrotherapy, and blunt debridement. Range of motion exercises, gentle strengthening, and ambulation as indicated. Fabrication of splints or orthotics as needed. Patient education in self care activities.

2. Open traumatic or surgical wounds.

Therapeutic intervention to include dressing changes, wound irrigation/hydrotherapy, and blunt debridement. Range of motion exercises, gentle strengthening and ambulation as indicated. Fabrication of splints or orthotics as needed. Patient education in self care activities.

D. **PULMONARY DYSFUNCTION.**

1. Respiratory dysfunction.

Therapeutic intervention may include all aspects of pulmonary chest physical therapy (chest clapping, chest vibration, incentive spirometry, mobilization techniques, postural drainage and breathing exercises). Progress to active exercises including ambulation as indicated. Patient education in pulmonary hygiene, breathing exercises, and proper posture.

E. **DENTAL INJURIES.**

1. Dental pain.

Therapeutic intervention may include the use of heat, cold or electrical stimulation for pain management. Cervical spine and postural exercises for pain and stress reduction.

2. Temporomandibular joint injury.

Therapeutic intervention may include the use of heat, cold, or electrical stimulation for pain management. Progressive exercises for range of motion, strengthening and postural alignment. Patient education in the care and prevention of temporomandibular joint dysfunction.

TAB C-12

PHYSICAL THERAPY PROCEDURES AVAILABLE
IN 500 BED FLEET HOSPITALS

A. **TECHNIQUES.**

1. Manual therapies, spinal and peripheral joint mobilization.
2. Range of motion exercises active, active assistive and passive.
3. Strengthening exercises; manual, elastic, and fixed resistances.
4. Proprioceptive neuromuscular facilitation techniques.
5. Balance exercises.
6. Coordination exercises.
7. Massage.
8. Ambulation (gait) training.
9. Manual traction/compression.

B. **MODALITIES.**

1. Hot pack.
2. Ice pack/massage.
3. Electrical stimulation.
4. Ultrasound.

C. **PROCEDURES.**

1. Dressing changes.
2. Wound care/debridement.
3. Wound irrigation/hydrotherapy.
4. Compressive wrapping.
5. Chest physical therapy.
6. Splint/orthotic fabrication.

7. Patient education.

TAB C-13

PATIENT PRIORITIES FOR PHYSICAL THERAPY CARE

1. Patients with burn injuries and/or open wounds which require immediate care to protect life or limb have first priority of care.

2. Patients with musculoskeletal injuries which if treated quickly would allow immediate return to their unit make up the second priority of care.

3. Patients both on full care and self care wards with musculoskeletal injuries which will eventually allow them to return to their units follow the acute outpatient in terms of priority.

4. Patients with long term or permanently disabling injuries will be seen whenever possible, as dictated by the current patient population profile.

TAB C-14

TREATMENT FOR EDEMA

1. Elevate limb with the bandage on and exercise the muscles. The muscles should be contracted strongly and rhythmically about 10 times every three (3) to five (5) minutes while the limb is elevated. The muscles may be contracted oftener if desired. The bandage should be removed and reapplied just before the limb is lowered. The bandage also should be removed and left off at night and the limb should be elevated most or all of the night. The bandage should be put on in the morning before getting out of bed.

2. The following schedule is suggested for periods of elevation, but progress may have to be slower than this.

(a) OnC-half hour of each two (2) hours for the first two (2) weeks after the program is started.

(b) OnC-half hour of each three (3) for the third week.

(c) OnC-half hour of each four (4) hours for the fourth week.

(d) OnC-half hour two (2) or three (3) times a day indefinitely thereafter.

3. After the limb has reached its minimal size, if elastic support is required for several more weeks or months, it is usually easier to use an elastic sleeve or stocking than to continue with bandages.

4. When wearing a sleeve or stocking, it may be left on during the exercises and elevation. If it begins to feel too tight, the limb should be elevated for awhile, but leaving on the sleeve or stocking. Patients with paralysis, loss of sensation, or poor arterial circulation in the lower extremities must not wear the elastic stocking in bed at night. Other persons need not.

5. After three (3) months, try leaving the bandage (or sleeve or stocking) off for two (2) hours before bedtime. Measure the circumference of the limb at two or three places as soon as the elastic support is removed and again at bedtime. If the circumference has increased, the elastic support must be continued; if it has not increased, the support may be removed for three (3) hours the next day, four (4) the next, and so on.

TAB C-15

CONTRAST BATHS FOR HANDS OR FEET

1. Fill one large basin or similar container with cold water at _____ degrees fahrenheit (use bath thermometer). Fill another container with hot water at _____ degrees Fahrenheit. Place hands or feet first in the hot water and then in the cold water, according to the following schedule.

<u>Hot</u>	<u>Cold</u>
10 minutes	1 minute
4 minutes	1 minute
4 minutes	1 minute
4 minutes	1 minute
4 minutes	1 minute
4 minutes	

2. The contrast baths should be used once or twice daily.

3. For the hands, a lavatory or sink can be used for the hot water. For the cold water, a large plastic dishpan about seven (7) inches deep is satisfactory.

4. For the feet, it is sometimes possible to use the bathtub for the warm water. The cold water can be in a rectangular household bucket or plastic wastebasket measuring about 14 inches deep and about 12 by 12 inches at the bottom.

As an alternative, two plastic wastebaskets can be used in the bathtub, one with hot water and one with cold water. Double laundry tubs, placed on the flow, also can be used for the contrast baths for the feet.

TAB C-16

INSTRUCTIONS FOR USE OF A CANE

A. PURPOSE:

1. To relieve or decrease pain.
2. To decrease the "wear and tear" of joints.
3. To add stability.
4. To widen the base of support.
5. To ease the pull of certain muscle groups.

B. HOW TO USE:

1. Walking.

(a) The cane should be used in the hand on the opposite side of the involved side.

(b) The cane should move with the involved foot at all times.

(c) Put as much weight on the cane as necessary to make walking comfortable, stable, and smooth.

(d) Stand tall with good posture and look ahead, not down at the floor.

2. Up stairs.

(a) "Up with the good". Lead with the good foot.

(b) Then move cane and involved foot up the step at the same time.

(c) Continue the sequence.

3. Down stairs.

(a) "Down with the weak". Lead with the cane and the involved foot.

(b) Bring good foot down to step.

(c) Continue the sequence.

C. PRECAUTIONS:

1. Have a good solid cane with a wide rubber tip.
2. When using steps, use the railing with the free hand (opposite side of cane) whenever possible.
3. Be extremely careful on ice, in wet weather, or other dangerous conditions.

TAB C-17

ICE MASSAGE

A. MATERIALS NEEDED:

1. Ice that has been frozen in a paper or styrofoam cup. May also be frozen with a tongue depressor sticking out of the ice to use as a handle when applying to patient.
2. Towel to absorb the water as the ice melts.

B. DIRECTIONS:

1. Completely undress the area to be treated.
2. Apply the ice to the area by moving the ice in a circular motion. Apply a mild amount of pressure to the area with the ice and be sure to keep the ice moving at all times when in contact with the skin. The ice may be held by the tongue depressor, frozen in the ice, or wrap a paper towel around the ice to insulate the fingers from the cold.
3. The ice should be applied until the area reaches one of the stages listed below.
 - (a) The first stage is simply the sensation of cold.
 - (b) The second stage has been reached when the patient feels pain.
 - (c) The third stage has been reached when the patient feels a burning sensation in the area being treated.
 - (d) The fourth and final stage has been reached when the area being treated feels numb to the patient.

Note: It usually takes 5-7 minutes to reach the fourth or numb stage.

CAUTION: If the area being treated turns noticeably white or blue, discontinue treatment immediately. This indicates that frostbite damage may be taking place.

TAB C-18

GENERAL PRINCIPLES OF RELAXATION

Maintenance of a good work capacity depends partly on regular daily periods of sufficient mental and physical relaxation. Continued mental tension that is associated with increased tension or tightness of certain groups of muscles during the day or even during sleep at night, is very common and may lead to pain. Pain itself may intensify muscular tightness.

Once you have recognized the feeling of muscular tightness, you can also recognize the feeling of muscular relaxation. Relaxation may not become habitual, however, until you have practiced the voluntary release of muscular tightness daily for several weeks.

A. The following general suggestions, coupled with daily practice, can help improve the ability to relax muscles.

1. Obtain at least eight (8) hours of sleep each night.
2. Arrange for a period of rest at noontime; even a few minutes are helpful. If you have no place to lie down, find a comfortable chair, stretch out in it, close your eyes and permit your neck, arms and legs to become relaxed. The feeling of heaviness leads you into release of muscular tightness and mental relaxation. "Sigh" deeply two (2) or three (3) time; sighing tends to increase relaxation. If you awaken refreshed after 10 to 20 minutes of sleep, you have obtained sufficient relaxation.
3. Make it a habit to recognize the feeling of muscular tightness when it occurs. Only by becoming aware of muscular tightness on voluntary or involuntary muscular contraction can you hope to decrease the tightness. In the beginning, recognizing muscular tightness may be difficult. You can experience the feeling by actively contracting muscles; for example, by making a tight fist, you can feel the contraction of the muscles of the forearm. You can obtain relaxation then by slowly releasing the contraction, until a feeling of complete relaxation is perceived. Persons who have learned to distinguish between the feeling of muscular contraction and that of muscular relaxation usually can learn to release muscular tightness voluntarily.
4. Practice daily until relaxation becomes habitual. Lie on a bed with a firm mattress or on a carpet. Rest your arms at your sides without being cramped. A small pillow may be used to support your head.

5. Each day before starting the next practice period, try to recall the depth of relaxation achieved previously.

6. Do not feel that repetition is a waste of time; it is essential and highly beneficial.

7. Try to determine, before going to sleep at night, if you have any sensation of tightness of your neck, back, jaw, forehead, shoulder, or hips.

B. Relaxation of back muscles.

1. Original position: lie face down, in a quiet room on a firm mattress or on a carpet.

2. Gently raise head and chest off the surface while pulling shoulders backward. Do not arch the neck backward. Avoid pain. Inhale as chest is raised. Hold position until the contraction of back muscles is clearly felt.

3. While slowly exhaling, gently return to original position by gradually relaxing neck and back muscles. Continue to increase the feeling of relaxation after returning to the original position.

4. Continue with relaxation until ready for the next repetition.

5. Repeat two (2) to five (5) times. Do the exercises slowly.

C. Relaxation of upper back and neck.

1. Original position: sit on a comfortable chair in a quiet room, with head well balanced and arms hanging loose at both sides or in the lap.

2. Inhale slowly, draw shoulders slowly up and backward, bend head slightly forward.

3. Hold position until contractions of the muscles of the back of the neck and upper back are felt. Avoid pain.

4. Exhale slowly. Gently return to the original position by gradually relaxing muscles of the neck and upper back, letting shoulders drop, and balancing head. Continue to increase the feeling of relaxation while resting in the original position.

5. Continue with relaxation until ready for the next repetition.

6. Repeat two (2) to five (5) times. Do the exercises slowly.

D. Relaxation of the arm.

1. Original position: lie face up, on a firm mattress or carpet in a quiet room with arms resting at both sides.

2. Clench fist (left or right) tightly and bend elbow until you feel the contraction of the muscles in your forearm.

3. Gradually release the fist and the contraction of the muscles of the arm and allow the arm to straighten again slowly until it rests in the original position. Continue to increase the feeling of release of muscular contraction until ready for repetition.

4. Repeat two (2) to five (5) times. Allow time for tensing and relaxation.

E. Relaxation of the muscles of the chest.

1. Original position: lie face up on a firm mattress or carpet in a quiet room with arms resting at both sides.

2. Slowly inhale and raise the extended arms forward over the chest until palms of the hands meet.

3. Slowly press palms of the hands together until the increasing contraction of the muscles of the chest is felt.

4. Gradually release the pressure at the hands and the contraction of the muscles of the chest and allow the extended arms to return slowly to rest in the original position. Continue to increase the feeling of release of contraction until ready for repetition.

5. Repeat two (2) to five (5) times. Allow time for tensing and relaxation.

F. Relaxation of the hips or buttocks.

1. Original position: lie face up on a firm mattress or carpet in a quiet room with knees bent. Keep both feet flat on the surface.

2. Inhale and gently let abdomen push out.

3. Exhale, gently draw in abdomen, and slowly pinch together the muscles of the buttocks. Force lower part of back toward the floor and raise buttocks up by tilting the

pelvis. Hold position until contraction of buttocks muscles, thighs and abdomen muscles is felt.

4. Release muscle contraction gradually and slowly return to original position. Continue to increase the feeling of release of contraction until ready for repetition.

5. Repeat two (2) to five (5) times. Do the exercises slowly.

TAB C-19

DEEP BREATHING EXERCISES

While standing or sitting, clasp the hands behind the head. If this position is not practical, stand with hands on hips.

1. Pull bent elbows firmly back while inhaling deeply.
2. Hold this position for a count of five (5); exhale, and relax.
3. Repeat five (5) to twenty (20) times.

TAB C-20

ISOMETRIC STRENGTHENING OF THE NECK MUSCLES

Do the exercises while lying on your back, sitting or standing. Repeat the exercises the recommended number of times or as instructed by the therapist.

1. Neck flexion. With neck bent slightly forward, place hand under chin. Attempt to bend head and neck forward, but resist the motion with hand. Hold recommended number of seconds.

2. Neck extension. With head and neck straight, place hands at the back of head. Attempt to move head backward, but resist the motion with hands. Hold recommended number of seconds.

3. Lateral tilt. With chin level and head straight, place hand on the left side of head. Attempt to tilt head to the left, but resist this motion with hand. Hold recommended number of seconds.

4. Do the same as #3 only to the right side.

5. Rotation. With chin level and head turned slightly to the left, place hand on the left side of chin. Attempt to turn head to the left, but resist the motion with hand. Hold recommended number of seconds.

6. Do the same as #5 only to the right side.

TAB C-21

DESENSITIZATION EXERCISES

Perform these exercises for 10 - 15 minutes, four (4) times per day. Proceed to the next step only when the previous one is comfortable.

Step 1.

Using a small piece of foam rubber:

- a. Stroke it lightly over the sensitive area.
- b. Gradually use a firmer pressure.

Step 2.

Using a pencil eraser:

- a. Touch lightly over the sensitive area.
- b. Gradually use a firmer pressure.

Step 3.

Using a roll-on deodorant bottle:

- a. Roll over the sensitive area.
- b. Fill the bottle with lotion, roll over the sensitive area, and then follow with massage.

Step 4.

Using the fabrics in the following order (a, b, c, d), stroke the sensitive area:

- a. Flannel.
- b. Cotton.
- c. Corduroy.
- d. Wool.

TAB C-22

PHYSICAL THERAPY FOR THE AMPUTEE

PRC-PROSTHETIC PROGRAM

A. Level 1.

1. Function: strengthening of uninvolved extremities (wts, wall pulleys, etc.)

2. Involved extremity ROM only.

(a) Indications: open stump, extensive weakness (less than 4), age, sex, complications of injury as related i.e. fractures, sutures in place, PMH i.e. cardiac, COPD, etc.

3. Supine.

(a) Resistive ROM upper extremities x10.

(b) Hip isometric adduction with towel roll x20.

4. Prone.

(a) Gluteal sets x20; hold slow for the count of five (5).

(b) Hip extension x20.

(c) Back extension exercises; opposite arm and leg x20; hold slow for the count of five (5).

5. Sidelying.

Hip extension and abduction combined x20.

6. For BK's add the following:

(a) Quad sets x20, hold slow for the count of five (5).

(b) Prone: knee flexion x20.

(c) Sitting: knee extension x20.

B. Level II.

1. Continue all Level I, but add manual resistance to:

(a) Involved extremities, progress to patients tolerance.

- (b) Prone hip extension x20.
- (c) Sidelying hip extension and abduction x20.
- 2. Decrease hip flexion.
- 3. Increase hip extension and abduction, isometric adduction; knee flexion and extension; rotation.
- 4. Indications: physically and medically stable.
- 5. Begin PRE to quads and hams: use NK table if able, if not use anal resistance.

TAB C-23

ISOMETRIC STRENGTHENING EXERCISES FINGERS AND THUMB

A. Fingers.

1. MP Flexion.

(a) Rest back of hand on table. Bend knuckles so that fingers point straight up. Hold recommended time.

(b) With hand in above position, have someone try to punch your fingers down to the table while you resist by keeping knuckles bent. Hold recommended time.

(c) Make a tabletop with fingers by bending only the knuckles and keeping wrist and finger joints straight. Push palm side of fingers against the underside of a table, keeping knuckles bent. Hold recommended time.

2. MP Extension.

(a) Rest hand on table, palm down with knuckles and finger joints slightly bent. Straighten knuckles, keeping fingers slightly bent. Fingers should come up off of the table. Hold recommended time.

(b) With hand in above position, have someone try to push bent fingers back onto the table while you resist by keeping knuckles straight. Hold recommended time.

(c) With hand held vertically and fingers straight up, have someone push on fingers trying to bend the knuckles while you resist by keeping knuckles straight. Hold recommended time.

(d) With knuckles and fingers held straight, push the tops of your fingers against the underside of a table. Hold recommended time.

(e) Hold hand parallel to the floor with knuckles and fingers straight, palm down. Place object of recommended weight over the middle of your fingers. Hold recommended time.

3. IP Flexion.

(a) Rest hand on table, palm up and fingers straight. Hold knuckles straight, but bend finger joints. Hold recommended time.

(b) With hand in above position, have someone try to straighten finger joints while you keep them bent.

(c) Exercise both hands at once by clasping fingers together and pulling out. Hold recommended time.

(d) Fingers may be exercised one at a time if strength varies in each.

4. IP Extension.

(a) Make a tabletop with fingers by bending only the knuckles and keeping finger joints straight. Hold recommended time.

(b) With hand in above position, push down on fingers between middle and last joints, keeping fingers straight. Hold recommended time. Push on fingernails, keeping fingers straight. Hold recommended time.

(c) Place object of recommended weight on fingers, keeping them straight with knuckles bent. Hold recommended time.

(d) Fingers may be exercised one at a time if strength varies in each.

5. Abduction.

Rest hand on table, palm down with fingers together. Spread fingers apart. Push on thumb side of index finger and outside of ring and little fingers, trying to move them toward the middle finger. Resist by holding fingers apart. Work each finger separately. Hold recommended time.

6. Adduction.

(a) Rest hand on table, palm down with fingers apart. Move fingers together. Try to move each finger apart, index toward thumb, ring and little finger toward little finger side of hand. Resist by holding fingers tightly together. Hold recommended time.

(b) Pick up objects between each set of fingers. Hold recommended time.

B. Thumb.

1. Flexion.

(a) On table, rest hand on edge so that thumb is on

top. Bend thumb joints and resist by trying to pull each joint straight. Work each joint separately, trying to straighten just above each joint. Hold recommended time.

(b) Holding in bent position, push tip of thumb against tabletop. Hold recommended time.

2. Extension.

(a) On table, rest hand on edge so that thumb is on top. Raise thumb straight up from fingers. Hold recommended time.

(b) Push against each joint trying to bend, but hold joint straight. Hold recommended time.

(c) Push top of straightened thumb against underside of table and do not let it bend. Hold recommended time.

3. Abduction.

(a) Rest hand on table, palm up. Raise thumb straight up. Hold recommended time.

(b) Push against outside border of thumb, trying to bring thumb down. Resist by holding thumb up. Hold recommended time.

4. Adduction.

Rest hand on table, palm down with thumb out to the side. Try to bring thumb in toward the index finger while resistance is given on the inside border of the thumb. Hold recommended time.

5. Opposition.

(a) Rest hand on table, palm upward. Bring pads of thumb and little finger tips together and hold recommended time.

(b) Push out at base of thumb and little fingers, keeping tips together. Hold recommended time.

(c) Squeeze a tennis ball, with thumb pointed in the direction of the little finger. Hold recommended time.

TAB C-24

ISOMETRIC STRENGTHENING EXERCISES ELBOW AND WRIST

A. Elbow.

1. Flexion.

(a) Sit or stand with your arm held at your side, palm forward, or with your forearm (elbow to wrist) resting on a table, palm up. Bend your elbow, fingers pointing straight to ceiling. Hold recommended time.

(b) Bend elbow in above position and have someone hold your forearm and try to straighten it while you resist. Hold recommended time.

(c) Holding arm at side, elbow bent so that your forearm is parallel with the floor and palm up, place recommended weight on forearm and hold recommended time.

(d) Sit at a table with your arm held at your side, elbow bent to 45°, palm resting on the bottom of the table. Push up against the table, keeping elbow at your side. Hold recommended time.

(e) Do the above exercises with your forearm rotated so that your palm faces your mid line. Hold recommended time.

2. Extension.

(a) Sit or stand with your upper arm (shoulder to elbow) raised vertically and elbow bent. Straighten your elbow so that your fingers point toward the ceiling. Hold recommended time.

(b) Hold arm in above position and try to straighten your elbow while someone pushes against your forearm. Hold recommended time.

(c) Have elbow bent and resting on a table with palm facing you. Try to push your forearm down onto the table while someone resists by pulling in the opposite direction. Hold recommended time.

(d) Lie on your back with upper arm straight out to the side and back of hand and forearm pushing against a wall. Hold recommended time.

(e) For elbow flexion and extension together, fold arms in front of you with elbows bent to 90°, palms resting on

opposite forearms. Push down with top forearm, trying to straighten elbow and up with bottom forearm trying to bend elbow. Hold recommended time.

B. Forearm.

1. Supination.

(a) Rest your forearm (elbow to wrist) on a table, palm down. Keeping your elbow down, turn your hand "on edge" so that your thumb is on top. Hold recommended time.

(b) Try to move your forearm into the above position while someone resists by holding your hand flat on the table. Hold recommended time.

(c) Hold the end of a dowel or broomstick and try to turn it in the direction away from your mid line. Have someone hold the other end and turn in the opposite direction. (Keep your elbow at your side.) Hold recommended time.

2. Pronation.

(a) Rest your forearm (elbow to wrist) on a table, palm up. Keeping your elbow down, turn your hand "on edge" so that your thumb is on top. Hold recommended time.

(b) Try to move your forearm into the above position while someone resists by holding your hand flat on the table. Hold recommended time.

(c) Hold the end of a dowel or broomstick and try to turn it toward your mid line. Have someone hold the other end and turn in the opposite direction. (Keep your elbow at your side.) Hold recommended time.

C. Wrist.

1. Flexion.

(a) Rest forearm (elbow to wrist) on a table, palm up. Bend wrist up as far as possible and hold recommended time.

(b) With forearm resting in above position, have someone hold the back of your hand against the table while you try to bend your wrist up. Hold recommended time.

(c) Rest forearm on a table with wrist and hand hanging over the edge. With palm up, bend wrist up as far as possible. Place recommended weight across your palm as you continue holding your wrist up. Hold recommended time.

2. Extension.

(a) Rest forearm (elbow to wrist) on a table, palm down. Bend wrist up as far as possible and hold recommended time.

(b) With forearm resting in above position, have someone hold your palm against the table while you try to bend your wrist up. Hold recommended time.

(c) Rest forearm on a table with wrist and hand hanging over the edge. With palm down, bend wrist up as far as possible. Place recommended weight across the back of your hand as you continue holding your wrist up. Hold recommended time.

TAB C-25

WAND EXERCISES

These exercises are for prC- and post- op injuries or conditions of the shoulder which result in a decrease in range of motion and/or muscle strength. They are to be performed in conjunction with the range of motion exercises of the shoulder and shoulder girdle. Check those exercises which the patient should perform two (2) to three (3) times per day, three (3) sets of ten (10) repetitions each. Any pole about three (3) feet long can be used in these exercises.

A. Lie on your back.

1. Hold wand with arms straight and shoulder-width apart. Keep knees bent up holding pelvic tilt in order to keep back on mat. Take wand up over head with elbows straight until wand reaches mat. Hold there for about one minute to allow gravity to assist range of motion. Bring wand back to starting position. Use recommended weight.

2. Hold each end of wand in each palm. Keep involved arm straight and on mat all the way to the ear. Use uninvolved arm to assist in getting arm out to side and up to ear. Try to increase range each time arm goes out to side. Bring back to starting position.

B. Lie on uninvolved side without wand.

Place involved arm palm down resting on side. Raise arm straight up from mat taking it back to reach ear. Hold there for about one minute. Bring back to side.

C. Standing with back flat against a wall holding a pelvic tilt.

1. Hold wand with hands shoulder-width apart and elbows straight. Take straight up over head back to wall. Bring back to starting position. Use recommended weight.

2. Hold each end of wand in each palm. Take involved arm straight out to side and up to ear keeping arm against wall. Do not raise shoulder. Bring back to starting position.

D. Standing away from the wall.

1. Hold wand behind back with hands shoulder-width apart and elbows straight. Take wand straight out from body without bending forward at waist. Bring wand back to body.

2. Hold wand behind back with hands together. Slide

hands up middle of back without bending forward at waist or upper back. Slide hands back down to starting position.

3. Hold wand in front of body with hands shoulder-width apart and elbows straight. Take wand straight up over head. Bend elbows and take wand down behind head. Do not bring head forward. Bring back to starting position.

4. Hold wand with hands shoulder-width apart and elbows bent (upper arm at shoulder level and pressed against wall). Rotate forearm backward moving wand toward wall overhead. Return to starting position. Rotate wand downward toward body (keep upper arm at shoulder level). Return to starting position.

TAB C-26

CODMAN'S EXERCISES

These exercises should be done for a total of five (5) to ten (10) minutes as prescribed by the Physical Therapist. In all of the exercises, keep the affected arm limp. A one (1) to two (2) pound weight may be placed in the affected hand if directed by the Physical Therapist.

1. Bend over at the waist and steady yourself by grasping a firm object (table, etc.) with your good hand. Swing the affected arm forward and backward by swaying the trunk forward and backward.

2. Same position as #1. Swing the affected arm from side to side by swaying the trunk from side to side.

3. Same position as #1. Swing the arm in a small clockwise circle and increase each arc. Then swing the arm in a counterclockwise direction. These exercises are preformed by swaying the trunk in a circular fashion.

TAB C-27

SHOULDER-GIRDLE EXERCISES

Do the series of exercises prescribed by the Physical Therapist twice a day. As shoulders and neck gain strength, increase the number of times each exercise is done consecutively.

1. Stand erect with arms at sides and hold a two (2) pound weight (sandbags, or bottles, jars or sacks filled with sand) in each hand with palms toward the body.

(a) Shrug (raise) shoulders forward and upward; relax.

(b) Shrug shoulders backward and upward; relax.

(c) Shrug shoulders upward; relax.

(d) Repeat ten (10) times.

2. Stand erect with arms at sides (palms toward body) and hold a two (2) pound weight in each hand.

(a) Raise arms sideways and up until backs of hands meet above head (keep elbows straight); relax.

(b) Repeat ten (10) times.

Note: As strength improves and exercises 1 and 2 become easier, heavier weights should be used.

3. Stand facing corner of room with one hand on each wall, arms at shoulder level, palms on wall, elbows bent and abdominal muscles contracted.

(a) Lean forward slowly and press chest into corner. Inhale as body leans forward.

(b) Return to original position by pushing out with hands. Exhale with this movement. Repeat ten (10) times.

4. Stand erect with arms at sides.

(a) Bend neck to left attempting to touch left ear to left shoulder without shrugging shoulder.

(b) Bend neck to right attempting to touch right ear to right shoulder without shrugging shoulder.

(c) Relax.

(d) Repeat ten (10) times.

5. Lie face down with hands clasped behind back.

(a) Raise head and chest as high as possible while pulling shoulders backward and chin in. Inhale as chest is raised. Hold this position for a count of three (3).

(b) Exhale and return to original position.

(c) Repeat ten (10) times.

6. Lie on back with arms at sides with a rolled towel or small pillow under upper part of back between shoulder blades and no pillow under head.

(a) Inhale slowly and raise arms upward and backward overhead.

(b) Exhale and lower arms to sides.

(c) Repeat ten (10) to twenty (20) times.

TAB C-28

COORDINATION EXERCISES FOR THE UPPER EXTREMITIES

Do exercises in sitting position. Number of repetitions of the exercise will be indicated by therapist. The exercises should be done slowly in the beginning, increasing speed as coordination improves.

A. Arm.

1. Beginning with the arm straight at the side, raise it forward and upwards over head.

2. Beginning with the arm straight at the side, raise it sideways and upwards over the head.

3. Same as number 1, but stop during the motion when halt is called by whoever is assisting the patient.

4. Same as number 2, but stop during the motion when halt is called by whoever is assisting the patient.

5. Lift arms alternately so that as one is going up the other is coming down.

6. Straighten arm in front of you and bring tip of index finger to touch the tip of your nose. Do with each arm, one at a time.

7. Begin as in number 6, but bring tip of index finger to touch the ear lobe on the opposite side. Do the same with each arm, one at a time.

8. Lift arms out sideways and upwards 90 degrees, then bring tips of index fingers together.

9. Raise arms sideways and upwards, clapping hands above the head. Repeat the same exercise, bringing the back of the hands together.

10. Place palms of hands to back of the neck, then rotate the arms downwards to place the backs of the hands against the lower part of the back. Keep the elbows bent.

11. Beginning with arms folded and elbows shoulder high, unfold the arms.

12. Raise arm sideways, shoulder high. Then move the arm in circles, starting with small circles and gradually increasing their size.

13. Same as number 12, only lift arm forward, shoulder high, before moving it in circles.

14. Throw a ball against a wall or play catch with someone.

15. Repeatedly slap the palm down on the knee and then put the back of the hand on the knee.

B. Wrist.

1. Keep the upper arm at your side (holding the forearm with the other hand if necessary). Move the hand upwards as far as possible, then downwards as far as possible. Repeat with the other wrist.

2. Same as number 1, except make a circle. Repeat with the other wrist.

C. Fingers.

1. Place palm flat on table; then raise and lower fingers one by one.

2. Pick up coins, buttons, or marbles of assorted sizes.

3. Crumple a piece of paper or cloth into a small ball.

4. Keep time to music with each finger.

5. Rest hand on table. Spread the fingers wide apart, and then bring them together.

6. Make an "O" by touching thumb to fingertips one at a time.

7. Flip balls of paper with tips of fingers.

8. Open and close safety pins.

9. Shuffle cards and deal one by one.

10. With a piece of string, tie a bow, or make continuous knots.

11. Button and unbutton buttons.

12. Write.

13. Use typewriter.

14. Do simple finger exercise on piano.

TAB C-29

EXERCISES TO IMPROVE MUSCULAR COORDINATION OF LOW EXTREMITIES

A. Recumbent Position.

1. Lie on a firm bed with legs out straight and head raised on pillows so that you can watch every movement. The bed should be arranged to permit the heel to slide over it easily. Movements should be slow and very precise. Do all exercises in a given group the recommended number of times twice daily until you have mastered those exercises. Begin a new group of exercises as old ones are mastered and continue to do those in the preceding group four times, once daily. Avoid fatigue.

2. First Group. Do each exercise with each lower extremity separately.

(a) Bend the lower extremity at the hip and knee joints, sliding the heel along the bed. Return to original position.

(b) Bend knee and hip as in 2-a. While maintaining this position, move the extremity sideward. Return extremity to neutral bent position and then to original straight position.

(c) Bend extremity at hip and knee half as much as in exercise 2-a and resume the original position.

(d) Repeat exercise 2-b using the degree of bending that you used in exercise 2-c.

3. Second Group.

(a) Bend one lower extremity with hip and knee joints nearly to right angle. Stop at any position on command. Resume the original position. Repeat, using other lower extremity.

(b) Bend both lower extremities at hip and knee joints. From the bent position, move both extremities sideward as far as is comfortable. Resume neutral bent position and then straighten legs to original position. Repeat, stopping at any position on command.

4. Third Group.

(a) Bend both lower extremities halfway. Move both extremities sideward from this position, return to neutral

bent position. Then straighten them.

(b) Bend both lower extremities and stop at any degree of bending or straightening on command.

5. Fourth Group.

(a) After one (1) or two (2) weeks, if the foregoing exercises have been mastered, the heel should be lifted a few inches from the bed and balancing of the limb should be combined with movements in the joints. Exaggerations of movements should be avoided.

(b) These exercises are started from and completed by return to the original position with legs straight. They are executed with each lower extremity separately.

(1) Bend one extremity at hip and knee with the heel raised from the bed.

(2) Bend one extremity and bring heel to rest above the other knee cap.

(3) Bend one extremity and bring heel to rest above the middle of the other shin.

6. Fifth Group.

(a) Bend one lower extremity at hip and knee joints and bring heel to rest on top of ankle of the other leg; return to original position.

(b) Same as 5-a, except that heel comes to rest on the toes of the other foot.

(c) Same as 5-a, except that heel is first put on the knee cap of the other leg, then raised and put on the middle of the shin, then put on the ankle joint, then on the toes, and finally returned to the original position.

(d) Same as 5-c, except in reverse order.

7. Sixth Group.

(a) Raise the heel of one foot and put it on the middle of the opposite shin and raise it again and put it against the inside of the leg. Resume original position.

(b) Place one heel on the opposite knee; then raise it and place it on the bed beside the knee. Raise the same heel and place it on the middle of the opposite shin. Again

raise the heel, straighten the knee and place the leg on the bed beside the opposite leg. Repeat, touching the other ankle instead of the knee. Vary this by reversing the order.

8. Seventh Group.

(a) Place heel of one foot on the opposite knee; then slide the heel down the shin to the ankle joint. Resume original position and repeat in reverse order.

(b) Same as 7-a, except that heel slides along the shin past the ankle and over the foot to the toes. Repeat in reverse order.

(c) Same as 7-a, except that heel slides along the shin to the middle, stops, continues to ankle joint, stops, and continues to toes, as in 7-b.

(d) Same as 7-b, except that the movement is stopped and continued at the command of whoever is assisting the patient.

9. Eighth Group.

(a) Bend both lower extremities. While one remains bent, straighten the other; repeat, with the opposite leg. Both heels should touch the bed at all times.

(b) Bend and straighten both lower extremities, keeping the heels off the bed during both movements.

(c) Lie on bed without head elevated. Bend hips and knees so that legs are over abdomen. Do motions of bicycle riding. Have both feet describe small circles, then large circles, and then small circles to end exercise.

10. Ninth Group.

(a) Bend one lower extremity. Move it sideward, while the opposite extremity is bent. Return first extremity to neutral bent position, while straightening the other.

(b) Same as 9-a, except that when the legs are straight, the heels are raised from the bed.

(c) Without touching the bed with either heel, one extremity is bent at the knee and hip joints and then straightened, while the other is bent, moved sideward, returned to the neutral bent position, and then straightened.

11. Tenth Group.

(a) Someone places the tip of his finger on various parts of one of the patient's lower extremities and the patient tries to put his other heel on this finger.

(b) Same as 10-a, except that the moment the patient tries to put his heel on the finger, the finger is moved to another place and the patient tries to follow its course without touching it.

B. Sitting Down and Getting Up.

1. Sitting Down Exercise.

Stand with your heels close to a chair and your knees slightly bent. Bend the body forward slightly and sit down, continuing the bending of the knees and the body. The body should be kept bent over until you are actually in the chair.

2. Getting-Up Exercise.

Draw the feet back until one heel is partly under the chair and the other foot is slightly ahead, bend the body forward over the knees, and rise by straightening the knees and hips and slowly straightening the body.

C. Walking.

1. At first a cane may be used and the eyes may be directed at the feet when walking. Again, fatigue should be avoided. You may tend to walk too fast. These exercises are difficult for some patients, and you may take a long time to learn them. Between attempts to do them, you may practice sitting down and getting up from a chair.

2. First Group.

(a) These exercises are designed to help you learn to walk with the feet nearly on the same line and with your toes pointed forward.

(b) Pointing toes forward, walk 10 steps forward between lines, 14 inches apart, which have been drawn on the floor.

(c) Same as 2-b. Keep legs spaced so that the distance between the heels is no more than 6 inches.

3. Second Group.

(a) The next exercises are variations of the foregoing to help you become aware of the position of the legs and feet, the width of the walking base, and the length of the step. Sometimes it is easier to walk sideways than forward; and, for that reason, the first walking exercises may be carried out in walking sideways rather than forward. Avoid balancing on the toes; try to walk using the whole foot.

(b) Take a half step forward at time and, after each step, place the feet together. Walk 10 steps in this manner.

(c) Take 10 half steps without pausing between steps.

(d) Take a quarter step forward and, after each step, place the feet together. Walk 10 steps in this manner.

(e) Take 10 quarter steps forward without pausing.

(f) Alternate half steps and quarter steps, bringing feet together after each step. Walk 10 steps in this manner.

(g) Practice tandem walking along a line - - that is, place heel of one foot in front of toes of other foot.

TAB C-30

KNEE EXERCISES

A. **PURPOSE:** The following exercises are designed for building the muscle strength of the anterior and posterior muscles of the thigh so that they are better able to support the knee and give it greater stability throughout activity. For the joint that is to undergo surgical procedures, building muscle strength better prepare the patient for post-op rehabilitation.

B. **EXERCISES:** The following exercises are to be performed routinely at least two times per day - if they are to be effective. Once you have obtained your maximum weight then the exercise may be done three times per week in order to maintain maximum strength. Do those exercises which are checked by the Therapist and maintain a record of your progress. It is also recommended to perform the exercises for both legs.

C. **THIGH STRENGTHENING EXERCISES:**

1. Quad Set.

(a) Sit on a firm surface with your legs straight out in front of you. This may be done in any position where your legs are straight.

(b) Tighten your anterior thigh muscle by pushing your knee into the mat which may cause your heel to rise slightly off the mat.

(c) Hold five seconds as tightly as possible. Relax.

(d) Repeat 30 times every hour during the day.

2. Straight Leg Raise.

(a) Lie on your back, resting on your elbows, or sit on a firm surface with your weak leg straight out in front of you and the other knee bent to relieve tension on the lower back.

(b) Perform a quad set and raise the leg approximately six inches from the surface. Hold for five seconds-lower leg slowly to the mat.

(c) Add weights as instructed.

3. Hip Abduction. (Raise top leg while side-lying.)

(a) Lie on strong-leg-side with the strong leg bent

for balance and the top (weak) leg straight. The trunk should be in a straight line with the top leg.

(b) Raise top leg straight up, keeping knee rolled forward. Note: Do not allow hip to roll backward so toes are pointing toward the ceiling.

(c) Hold for five (5) seconds. Return leg slowly to mat.

(d) Add weights gradually performing a total of 30 repetitions.

4. Prone Hip Extension. (Straight leg raise on stomach.)

(a) Lie on your stomach on a firm surface with your foot off of the end of the mat, if possible.

(b) Raise the entire leg straight off of the mat.
Note: Maintain the pelvis flat on the mat and do not roll.

(c) Hold for five (5) seconds, and return slowly to the mat.

(d) Add weights gradually as described in exercise 3.

5. Short Arc Quad. (Knee extension last 15 degrees.)

(a) Sit on a firm surface with your legs straight out in front of you.

(b) Place a firm object (book, etc.,) approximately three (3) inches high under your knee.

(c) Raise your heel off of the mat until the knee is completely straight. Hold for five (5) seconds. Relax slowly.

(d) Add weights gradually as described in exercise 3.

D. **KNEE RANGE OF MOTION:**

1. Prone Knee Flexion. (Bend knee on stomach.)

(a) Lie on stomach on firm surface.

(b) Bend knee as far as possible. Hold five seconds.

(c) Repeat 30 times.

2. Sitting Knee Extension. (Straighten knee while sitting.)

(a) Sit on a firm surface with leg hanging over the edge and a towel roll under the knee.

(b) Straighten knee as far as able. Note: Sit evenly on pelvis and do no tilt to one side. You may have to slide forward so that calf does not hit the table.

(c) Repeat 30 times.

3. Hamstring Stretch. (Toe touch.)

(a) Sit on a firm surface with legs straight out in front of you.

(b) Maintain your knee straight. Reach for your toes and hold for five seconds. Return to starting position.

(c) Repeat 30 times trying to increase the distance you can reach each time.

TAB C-31

ISOMETRIC STRENGTHENING EXERCISES FOR KNEES

A. Isometric Quadriceps Exercise with Assistance.

Sit on a chair or table with a rolled towel under the knee. The knee is straight and the foot is held by an assistant with the weight over the ankle. The assistant releases his grip while you tighten the quadriceps muscles and hold the leg straight for recommended time. Rest completely as the assistant again supports your foot. Repeat recommended number of times.

B. Isometric Quadriceps Exercise without Assistance.

Sit on a chair or table with a rolled towel under the knee. The knee should be as straight as possible and the foot resting on a stool. Place the weights just above the ankle. The foot is lifted just enough to lift the whole load with as little movement as possible at the knee. Hold the leg straight for recommended time and then relax the thigh muscles so the foot is again resting on the stool. Repeat recommended number of times.

C. Isotonic Quadriceps Antigravity Strengthening Exercise.

Sit on a high chair or table with a rolled towel under the knee. The leg should be hanging free. Place the weights just above the ankle. Raise the foot by straightening the knee and hold it straight for recommended time. Then slowly lower the foot to the resting position. Repeat recommended number of times.

TAB C-32

LEG STRETCHING EXERCISES

A. **PURPOSE:** These exercises are designed to gradually stretch tight leg muscles. This will improve your mobility and decrease your chances of injury to leg muscles. Perform the exercises the recommended number of repetitions and times daily. Increase by the recommended number of repetitions each day until you reach the maximum recommended repetitions. Stretching should be done slowly - do not bounce.

B. **CALF STRETCH:**

Standing two (2) to three (3) feet away from a wall, lean forward so that your arms are supported by the wall. With one foot six (6) to eight (8) inches in front of the other, and your back leg straight, lean into the wall with your body. Hold this position for 15 to 30 seconds. You should feel a gentle stretch in the back of your leg. Relax. Repeat the above procedure with the other leg.

C. **BACK THIGH (HAMSTRING) STRETCH:**

Lie on back with your legs against the wall, keeping your knee straight. Hold this position for 30 to 60 seconds, then try to move your hips closer to the wall. Be sure to keep your knees straight during this exercise.

D. **FRONT THIGH (QUADRICEPS) STRETCH:**

Lying on your stomach, bend your knees and hold around your ankles with your hands. Gently pull your heels closer to your buttocks until you feel a stretch in the front of your thigh. Hold this position for 30 to 60 seconds. Try to pull your heels a little closer to buttocks and hold for another 30 to 60 seconds.

E. **LATERAL THIGH STRETCH:**

In the standing position, tilt your head and upper trunk toward the left and push your hips toward the right. Let your hand slide down your left leg. Avoid turning your head and upper body. Hold this position for 15 - 30 seconds. Repeat this procedure, tilting to the opposite side.

F. **INSIDE THIGH STRETCH:**

1. This exercise can be done two ways:

(a) Sitting on the floor, with the legs apart and knees straight, or,

(b) With the legs apart, knees bent, and bottoms of feet touching each other.

2. From either 1-a or 1-b position, lean your chest toward your legs until you feel a good stretch in your inner thigh muscles. Hold each position 30 - 60 seconds.

TAB C-33

LEG STRENGTHENING EXERCISES

A. **PURPOSE:** The following exercises are designed to strengthen the muscles of the lower leg so that they are better able to support the ankle and give it greater stability throughout activity.

B. **EXERCISES:**

The following exercises are to be performed routinely at least two times per day. Do those exercises which are checked by the Therapist and maintain a record of your progress. It is also recommended to perform the exercises for both legs.

1. Sitting with one end of the rubber tubing around the foot and the other end attached to an immovable object, such as, the end of a table, pull your foot back toward your knee. Be careful not to bend the knee. Do recommended number of repetitions.

2. Sitting on a chair with a can between your heels and rubber tubing around both feet, move your feet apart. Keep your heels pressed against the can and do not let your knees move. Do recommended number of repetitions.

3. Sitting with one end of the rubber tubing around the foot and the other end attached to an immovable object, such as the end of a table. Turn your foot inward. Be careful not to lift the heel and do not let your knee move. Do recommended number of repetitions.

4. Standing on both feet, raise up onto your toes and hold this position for three (3) seconds. Keep your knees straight. Do recommended number of repetitions.

5. Standing with one foot flat on the floor, lean forward with the hips, keeping the knee straight. Hold this position for 10 seconds, then relax. After resting 10 seconds, repeat. Do recommended number of repetitions.

TAB C-34

HOME TREATMENT

Treatment at home is of utmost importance and may need to be continued over a relatively long period of time. Improvement may be slow and at times progress is hardly noticeable. Treatment carried on at regular intervals is necessary to obtain best results. Unless otherwise specified by the physician, treatments should be given once or twice a day. This is important in deep-seated conditions of long duration.

A. EFFECTS OF HEAT:

1. Heat increases the flow of blood both to and from the part affected.

2. Heat increases the amounts of nutritive material brought to the region.

3. Heat hastens removal of waste products and promotes the inflammatory process to speed healing.

4. Heat relaxes the tissues and acts as a sedative to relieve pain.

B. APPLIANCES:

A tungsten filament bulb in a cup-shaped reflector, an infrared or heat lamp with a built-in reflector, or a number of 100-watt bulbs in a U-shaped baker are recommended for home treatment. The bakers can be raised or lowered on pillows or books to produce a comfortable heat. Lamps should be approximately 18 to 20 inches from the part being treated, and they can be moved as necessary for comfort. The patient should feel a comfortable warmth but no burning sensation. Electric pads can be used, but the heat produced is not as beneficial as that produced by the above methods and there is more danger of burns. Lying on an electric heating pad, even when turned to "low", can be particularly hazardous.

C. TIME REQUIRED FOR HEATING:

If heat is applied by means of an electric device, 20 to 30 minutes will suffice. Do not shorten the treatment.

D. RULES FOR MASSAGE:

1. General.

(a) Be sure the part is relaxed and comfortable and

that clothing has been removed from the area to be massaged.

(b) Have someone else give the massage as it is almost impossible to massage one's self effectively.

(c) Massage well above and below the affected region.

(d) Heavier pressure should be used during the upward stroke, toward the heart, than during the downward stroke.

(e) Massage should be deep, firm, slow, and rhythmical. The person who is giving the massage should keep his hands in contact with the skin of the affected part during the massage period.

(f) Massage should rarely, if ever, cause pain.

(g) Use talcum powder or mineral oil on the skin surface as a lubricant during massage. After the massage, mineral oil can be removed with rubbing alcohol.

2. Direction of massage.

(a) Massage the arm from elbow to shoulder, wrist to elbow, and finger to wrist.

(b) massage the lower extremity from knee to hip, ankle to knee, and toe to ankle.

(c) Massage the back on both sides of the spine from buttocks to neck, from buttocks to under the arms, over the buttocks, and over the entire back.

(d) Massage the neck on both sides of the spine from waist to base of skull, from spine out and across shoulder blade, then from base of skull to tip of shoulder.

3. Movements and application of massage.

(a) Stroking.

This is a long, smooth movement. Keeping the hand in contact with the skin, begin lightly and gradually increase pressure.

(b) Kneading.

This consists of grasping, wringing, lifting, rolling, or pressing a part of a muscle or muscle group. Care should be taken not to pinch with finger tips. Use the entire hand and arm in the movement.

(c) Finger kneading.

Finger kneading may be done with the thumb or fingers moving in small circles and sliding over the skin, but pressing against the underlying structure. Powder or lubricant is used.

(d) Friction.

The fingers or thumb move in small circles, the skin being made to slide around over the underlying structures. No powder or lubricant is used, and the fingers must not slide over the patient's skin.

(e) Begin and end the massage of each part with stroking. Finish with a very light stroke. Time required for massage: arm, five (5) to ten (10) minutes; leg, 10 minutes; back, 10 to 15 minutes.

TAB C-39

METHOD OF APPLYING THE COMPRESSION BANDAGE
FOR THE BELOW ELBOW AMPUTEE

Position of Patient:

Standing or sitting with elbow in slight flexion and forearm in neutral rotation.

Applying the Compression Bandage.

1. *Begin on lateral surface of elbow. Pass over anterior medial aspect of distal end with an oblique turn. Run posteriorly to the lateral side.

2. Bring bandage up and around medial side and down to the posterior lateral distal aspect of residual limb.

3. Continue making oblique and modified figure of eight turn until firm pressure is obtained distally.

NOTE: Pressure must always be up and out at distal end of residual limb to eliminate the formation of skin creases. Do not include both medial and lateral aspect of the end portion of residual limb in the same turn. This tends to cause skin creases. Never use circular turns as they tend to constrict circulation.

4. Reduce pressure from distal to proximal and proceed with spiral turns at least one inch above the elbow. Overlap half the bandage width on each turn.

5. Return below the elbow and finish the bandage. One may make oblique or figure of eight turns on the residual limb (not shown) in the event there is sufficient bandage remaining.

* May begin on medial surface. Pass over anterior lateral aspect, etc.

Additional instruction for use with the soft dressing:

1. Advise patient not to:

(a) Get the dressing wet.

(b) Put anything down inside the dressing. Articles used for scratching can cause abrasions to the skin.

(c) Put ice on the dressing unless instructed to do so.

(d) Sit with bandaging down when sitting in a chair. Keep it elevated or at level levelings.

2. Wrapping is required soon after surgery (in order to control edema and shape the residual limb for the definitive prosthesis). It should be worn 24 hours a day with rewrapping at least every four (4) hours or when no longer snug. The wrap should be continued even after the patient starts to wear the definitive prosthesis. Sometimes initial wearing causes irritations and swelling. The limb must be bandaged as soon as the prosthesis is removed. The residual limb normally continues to shrink even after the patient starts to wear the prosthesis on a regular basis. The shrinkage is greater yet if it has not occurred maximally preC-prosthetically. The net result is the socket will be larger too soon despite measures to insure proper fit. This necessitates the making of a new prosthesis. This is both costly and time consuming. Patient will also be without prosthesis. The duration of wrapping varies. The residual limb may stabilize within six (6) to eight (8) weeks of initial wearing and then wrapping may be discontinued. The "rule of thumb" is advise patient to leave bandage off overnight. If donning the prosthesis is not difficult the next morning, the condition has stabilized. In summary, the amputee should wrap the residual limb in any of the following conditions:

(a) If not wearing prosthesis daily - swelling could make it difficult if not impossible to don prosthesis. Wrapping will eliminate swelling.

(b) While waiting for the initial prosthesis to be fabricated.

(c) If patient has received permanent or definitive prosthesis but limb has not yet stabilized -- continue to wrap each night. Some may continue to wrap indefinitely due to fluctuation in size of limb. Once a uniform size has been attained and the donning of the prosthesis is not difficult, night wrapping is no longer required.

(d) If residual limb was left unwrapped for a period of time and donning is impossible. Wrap and elevate for an hour. Donning should be relatively easier following this procedure.

(e) Where abrasions developed and prosthetic wearing was discontinued.

(f) If pain occurs at night in the residual limb - wrapping may reduce this discomfort.

3. A clean bandage should be worn daily -- care must be taken in washing and drying so as not to damage its elastic property.

TAB C-41

METHOD OF APPLYING THE COMPRESSION BANDAGE FOR THE BELOW KNEE AMPUTEE

1. Position of patient.
 - (a) Patient may be supine with knee extended.
 - (b) Patient may be sitting with knee extended.
2. Procedure.
 - (a) Begin with an oblique turn inferior to the knee joint on the proximal posterior medial aspect of the residual limb.
 - (b) Run posteriorly to lateral distal aspect.
 - (c) Pass over the anterior lateral aspect of the distal end.
 - (d) Run proximal medial and posterior to the lateral aspect. Then run anterior to distal medial aspect.
 - (e) Continue making oblique and modified figure of eight turn till firm pressure is obtained distally.

NOTE: Pressure must always be up and out at distal end of residual limb to eliminate the formation of skin creases. Do not include both medial and lateral aspect of the end portion of residual limb in the same turn. This tends to cause skin creases. Never use circular turns which are not oblique as they tend to constrict circulation.

 - (f) Reduce pressure from distal to proximal and proceed with figure of eight turns at least two inches above the superior border of the patella. Overlap half the bandage width on each turn.
 - (g) Return to below the knee and finish the bandage. One may make oblique or figure of eight turns on the residual limb (not shown) in the event there is sufficient bandage remaining.

TAB D
CLINICAL POLICIES/GUIDELINES
INDEX

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TAB D-1

PHYSICAL THERAPY POLICIES

A. Physical Therapy provides treatment and evaluation of patients under the direction of a medical officer. Their primary objective will be to expedite the rapid return to duty of the casualty.

B. Physical Therapy will be involved in:

1. Conducting neuromusculoskeletal evaluation of the shoulder girdle, trunk, and lower extremities in accordance with AR 40-48 (or appropriate service regulations).

2. The therapy at the shoulder girdle, trunk, and lower extremities which will include the following modalities of treatment; range of motion exercises and strengthening exercises for specific injuries.

3. The non-surgical debridement and dressing changes of indolent wounds and thermal injuries.

4. Specific prescriptive exercises for rehabilitation of patients with disease or injury.

C. Physical therapist at echelon 3 and 4 will be required to monitor the reconditioning program of the wounded. This will insure that maximum fitness is attained prior to return to duty.

D. Patients will be treated once per day at echelon 3 and 4.

E. Most patients referred to physical therapy will require the identified tasks 100% of the time.

F. Crutches will be centrally stocked in the Orthopedic Cast Clinic and will be issued to patients. The crutches will be properly measured and the soldier will be trained in the correct use of the crutches in PT.

G. Echelon 3 equipment and supplies will be augmented with additional equipment and supplies at echelon 4.

TAB D-2

OCCUPATIONAL THERAPY POLICIES

A. Occupational Therapy will provide treatment and evaluation of patients under the direction of a medical officer. The primary objective will be to expedite the rapid return to duty of the casualty.

B. Occupational Therapy will be involved in:

1. Conducting neuromusculoskeletal evaluation of the upper extremity (hand, wrist, and elbow).

2. Therapy of the upper extremity to facilitate the coordination of range of motion and strengthening exercises for specific injuries.

3. The fabrication and application of orthotic devices for the upper extremity and immobilization/static splinting of the lower extremity.

4. The generalized physical reconditioning/work hardening programs to foster return to duty.

5. The development of activities for the treatment of combat stress, psychologically impaired and Disease Non-Battle Injury (DNBI) casualties.

6. The activities in daily living to facilitate patient self care and independence.

TAB E
STANDARDS AND JOB DESCRIPTIONS
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TAB E-1

SURGICAL SERVICES EVALUATIVE STANDARDS

1. Aseptic technique will be maintained at all times during a surgical procedure.
2. Personnel in surgery will wear scrub top, cap and mask.
3. OR equipment coming in contact with patient will be cleansed with a germicidal solution immediately after each surgical case.
4. The cleaning and set up time of the OR will not exceed 30 minutes.
5. On a daily basis, the Operating Room Specialty Treatment Area including minor surgery will be completely damp dusted and wet-vacuumed with a germicidal solution.
6. All emergency equipment will be inspected each watch and the checklist initialed and dated.
7. Once opened, instruments, sponges, needles, and supplies remain in OR Module or Minor Surgery Area until end of the procedure.
8. Any contaminated items, sponges, wastes must be placed in plastic lined receptacles and kept off the floor.
9. Safety straps will be applied around patient to secure to OR table.
10. Grounding pad will be applied to patient whenever electrosurgical unit (Bovie) is used.
11. Chronological record of medical care and prC-operative nursing notes will be completed for each patient undergoing minor surgery.
12. Daily OR schedule will be prepared.
13. All personnel are able to rapidly locate and operate any emergency equipment.
14. All personnel are able to locate the correct supplies/equipment for a procedure using procedure cards.
15. The patient will be informed about the procedure he is having, type of anesthesia, and told what to expect during the procedure.

16. Emergent patients will take priority over stable patients.

TAB E-2

SAFETY PRECAUTIONS

- A. **PURPOSE:** To maintain a safe, clean environment.
- B. **DEFINITION:** N/A.
- C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**
1. Needle destruction box.
 2. Sink.
 3. Bedpan washer
 4. Cleaning materials.
- D. **CRITERIA:**
1. All broken equipment will be removed from ward for repairs as defect is discovered.
 2. Staff will be instructed on proper techniques in lifting and handling patients and equipment.
 3. Hospital procedures for disposal of wastes will be followed.
- E. **STEPS:**
1. General precautions.
 - (a) Enforce NO SMOKING regulations.
 - (b) Wipe up spills immediately.
 - (c) Display signs to denote.
 - (1) Hazardous materials in use.
 - (2) Wet floors.
 - (3) Oxygen in use.
 - (4) Isolated areas.
 - (d) Keep passageways clear of furniture, equipment, and debris.
 2. Needle precautions.

- boxes.
 - (a) Dispose of used needles in needle destruction
- (b) Report needle stick to charge nurse immediately.
 - (c) Get medical attention IAW NAVMED P-5010.
 - (d) Store needles and syringes in an appropriate section of the ward medical locker.

3. Waste precautions.

- (a) Handle hazardous wastes, i.e., excretions, sera, blood, etc., IAW guidelines established by Environmental Health Department.
- (b) Clean bedpans in Clinical Workspace, only.
- (c) Prepare specimens in Clinical Workspace, only.

4. Personal safety.

- (a) Use good body mechanics when transporting litters, lifting or positioning patients IAW TAB F-1.
- (b) Avoid X-ray exposure.
 - (1) If possible, leave area when X-ray is being taken.
 - (2) Wear a lead apron if you must remain with patient.
- (c) Wash hands between each patient whenever possible.
- (d) Use caution when breaking a glass ampule to avoid cutting fingers. Use a file and cover finger tips with a piece of gauze for protection.

5. Patient safety.

- (a) Identify patients at high risk for falls. Those who:
 - (1) Are receiving narcotics or sedatives.
 - (2) Are disoriented or debilitated.
 - (3) Require ambulation devices such as crutches, canes, etc.

(b) Prevent patient falls and mechanical ambulation injuries.

(1) Teach patients to use ambulatory devices correctly.

(2) Assist weak patients with ambulation.

(3) Ensure patients wear proper footwear when ambulating.

(c) Beds and examining tables.

(1) Caution patients to turn slowly in bed due to narrowness and height of table/bed.

(2) Attend patients frequently while they are on examination table.

(3) Restrain patient as necessary using safety straps.

(4) Strap unattended patients to bed using abdominal body strap.

(d) Chairs/wheelchairs.

(1) Attend patient in chair if condition warrants.

(2) Lock wheels on wheelchair in transferring patient from chair to bed.

(3) Caution patient never to step on foot rest of wheelchair.

(e) Leather cuff restraints.

(1) Use leather cuff restraints to protect patients from self-injury and infliction of injury on others.

(2) Explain to patient that restraints are protective not punitive measures.

(3) Allow moderate movement of extremities.

(4) Check circulation on restrained extremities every 2 hours.

(5) Change patient's position every 2 hours to prevent discomfort, muscle and nerve damage, and skin

breakdown.

(6) Remove restraints one at a time to do range of motion exercises every 4 hours.

(7) Provide skin care to extremities every four hours.

(f) Heat applications.

(1) Ensure that all equipment is in proper working order.

(2) Observe patient closely to prevent burns.

(3) Apply heat lamp at a safe distance from patient for 15 minutes per treatment.

6. Environmental safety.

(a) Avoid electrical shock.

(1) Use extension cords in accordance to command policy.

(2) Use only grounded electrical equipment unless cleared through Medical Repair Division.

(3) Prevent shock and fire by checking electrical cords for defects and fraying.

(b) Oxygen safety regulations.

(1) Display "Oxygen in Use" sign.

(2) Chain or support all oxygen cylinders in holders.

(3) Do not use oil, grease, or flammable liquid on equipment.

(4) Prevent static electricity by not using wool materials.

(5) Remove antiseptic tinctures and alcohol from immediate oxygen environment.

(6) Keep oxygen storage free of combustible material.

(7) Monitor cylinder pressure readings. Change

cylinder if p.s.i. is 100 or less.

(8) Keep wrench with cylinder.

F. **RESPONSIBILITY:**

1. Charge Nurse.
2. Senior Corpsman.

TAB E-3

EMERGENCY CARDIO RESUSCITATION KIT

A. **PURPOSE:** To provide appropriate supplies/equipment needed during emergency situations.

B. **DEFINITION:** N/A.

C. **EQUIPMENT, SUPPLIES, AND FORMS REQUIRED:**

1. Emergency Cardio Resuscitation Kit (Sparks Kit).
2. Emergency Kit Inventory List.
3. Departmental Log.

D. **CRITERIA:**

1. Emergency Cardio Resuscitation Kit is readily accessible.
2. Kit is completely stocked and inventoried when seal is intact.
3. Oxygen cylinders, wrenches, and seals on Emergency Cardio Resuscitation Kit will be checked every watch.

E. **STEPS:**

1. Emergency Cardio Resuscitation Kit will be located in the Operating Room Support Area at all times. It will be used only for cardio-resuscitative emergencies.
2. Senior Corpsman on each watch will check to ensure seals have not been broken, and oxygen pressure in cylinders is sufficient, that is psi is not less than 500.
3. Inventory emergency Cardio Resuscitation Kit every three months or when seals have been broken.
4. Check daily the Emergency Kit Inventory List posted on the outside of kit for drug expiration dates.
5. Make appropriate entries in the Departmental Log.
6. Senior Corpsman will be responsible for rC-supplying kit during normal working hours. The Watch LPO assumes this responsibility at other times.

F. **RESPONSIBILITY:**

Senior Corpsman or his representative.

TAB E-4

ORIENTATION PROGRAM FOR SPECIALTY TREATMENT AREA

A. **TERMINAL OBJECTIVE:** Each person will demonstrate knowledge and skills necessary to work independently in assigned hospital space. The knowledge and skill level required will be dependent upon billet assigned.

B. **ENABLING OBJECTIVES:**

1. Will have completed a two week training course at the Fleet Hospital Training Activity (FHTA), Camp Pendleton, CA. As part of the course, experience will be provided in area of specialty.

2. Demonstrate a working knowledge of the physical layout of the hospital space assigned.

3. Demonstrate familiarity with the department or area assigned standard operating procedure manual for the Fleet Hospital.

4. Demonstrate knowledge and skill in performing the following:

C. **SKILLS:**

1. Record keeping.

(a) Area Log.

(b) Surgery Log.

(c) Perioperative Nursing Note.

(d) Emergency Equipment Checklist.

(e) Standard medical records and forms.

2. Location of equipment and supplies.

(a) Emergency Equipment (Sparks Kit, Drug Box, and Defibrillator).

(b) Instrument trays, instruments.

(c) Linen packs.

(d) Procedure cards for OR cases.

(e) Equipment in all spaces.

- (f) Supplies in all spaces.
- (g) Dirty storage areas.
- (h) Control desk.
- 3. Operation of equipment.
 - (a) OR table and attachments.
 - (b) OR lights.
 - (c) Electrosurgery unit.
 - (d) Defibrillator.
 - (e) Litter rack.
 - (f) Pneumatic tourniquet.
 - (g) suction machine.
- 4. Surgery procedures.
 - (a) Identification of instruments, supplies needed for a case.
 - (b) Set up for surgery.
 - (c) Perioperative nursing care.
 - (d) Cleaning after surgery.
- 5. Patient assessment and triage.
- 6. Performance of procedures IAW Job Descriptions (TAB G-7).

TAB E-5.1

PHYSICAL THERAPIST JOB DESCRIPTION

The physical therapist assigned to the 250 bed combat zone Fleet Hospital will provide and direct physical therapy services as pertinent to the Fleet Hospitals' mission. The Head of Physical Therapy is responsible to the Director of Ancillary Services for the proper administrative and clinical management of the Physical Therapy Department.

THE PHYSICAL THERAPIST WILL:

1. Perform neuromusculoskeletal evaluations upon referral. These evaluations may include muscle strength testing, evaluation of neurological function, measurement of joint mobility, soft tissue examination, testing of the circulatory system, postural assessment, gait evaluation, respiratory system evaluation, brace and or orthotic production/evaluation, and electrophysiologic testing as indicated.
2. Develop a treatment program based upon the patients' condition, physician referral and results of the initial physical therapy evaluation.
3. Utilize physical agents in the treatment of patients as indicated and available. These may include heat (radiant, electrical or sound induced), cold, electrical stimulation, traction, and compression.
4. Utilize exercise programs for the treatment of patients as indicated and as feasible. Therapeutic programs may include active to passive range of motion exercises, progressive resistance strengthening exercises, balance exercises, coordination exercises, endurance exercises, and postural correction.
5. Perform debridement of wounds and burns as requested by the attending physician.
6. Assist with pulmonary hygiene to include bed side care and exercise prescription.
7. Perform gait training utilizing assistive devices (crutches and canes) as available.
8. Provide timely reevaluations for those patients remaining at the Fleet Hospital level. Update and progress therapeutic programs as indicated.
9. Institute patient education programs for patients with

burn injuries, amputations, back/neck injuries, upper extremity and lower extremity injuries.

10 .Institute staff education programs for proper back care, patient transfer principles, and early rehabilitation efforts.

11. Assist the commands physical fitness and moral/recreation/welfare officer with support and guidance in terms of maintaining staff physical fitness requirements.

12. Develop a physical fitness education program to assist newly reporting staff in the process of acclimation.

13. Assist with patient triage during periods of mass casualty reception as specified by the director of ancillary services.

14. Maintain and increase the knowledge/skill level of staff physical therapy technicians by the development of an ongoing series of educational programs.

15. Complete all required documentation concerning the provision of physical therapy services.

16. Provide a mechanism to account for the appropriate supervision of physical therapy technicians in the performance of their clinical duties.

17. Develop a program for the ongoing review and evaluation of patient care standards.

18. Oversee the ordering of supplies and equipment.

19. Maintain physical therapy staff awareness and education concerning the roles and responsibilities of functioning within a Fleet Hospital (hostile) environment.

20. Perform all collateral duties as assigned by the director of ancillary services.

TAB E-5.2

LEADING PETTY OFFICER JOB DESCRIPTION

The leading petty officer of the Physical Therapy Department is responsible to the Head of the Physical Therapy Department. The LPO will assist the Head of Physical Therapy in the administration, organization and supervision of the Physical Therapy Department.

THE LEADING PETTY OFFICER WILL:

1. Establish working schedules for the physical therapy technician staff.
2. Assist in coordinating the functioning of the physical therapy department with other areas of the Fleet Hospital.
3. Supervises and conducts ongoing training programs for subordinates in both areas of functioning as a physical therapy technicians and Navy corpsmen.
4. Performs routine evaluations of subordinate staff personnel and counsels personnel as required.
5. Schedules and assigns duties to the staff technicians concerning regular equipment maintenance.
6. Assists with the requisition of required equipment and consumable supplies.
7. Provides direct patient care as required by patient load and staff scheduling.

TAB E-5.3

PHYSICAL THERAPY TECHNICIAN JOB DESCRIPTION

The physical therapy technician, under the direction of a physical therapist or staff physician, will provide direct patient care to patients requiring physical therapy intervention.

DUTIES OF THE PHYSICAL THERAPY TECHNICIAN

1. Receives and follows the physical therapy treatment orders from the physical therapist or staff physician.
2. Provides exercise treatments to include range of motion exercises, resistance strengthening exercises, balance exercises, coordinate exercises, endurance exercises, and postural correction exercises.
3. Performs therapeutic use of physical modalities such as heat, ice, electrical stimulation, traction and compression as specified.
4. Assists with gait training to include sitting balance, standing and ambulation with assistive devices (crutches and/or cane).
5. Provide burn and wound care as ordered. This may include dressing changes, wound irrigation/hydrotherapy, and blunt debridement.
6. Fabrication of functional and protective orthotics and splints as needed for patients with orthopaedic, dermatological, or neurological injuries.
7. Provide patient education regarding treatment goals, self care, and therapeutic exercise programs.
8. Takes physiologic measurements of strength, range of motion, respiratory function, blood pressure and heart rate to use in documenting patient care and treatment progression.
9. Provides pulmonary physical therapy as ordered. This may include chest clapping, chest vibration, postural drainage, and deep breathing exercises.
10. Maintains timely and informative documentation of patient progress with current physical therapy program.
11. Completes collateral duties as assigned by the Head of Physical Therapy.

TAB F
REFERENCES
INDEX

<u>TAB</u>	<u>NUMBER</u>	<u>TITLE</u>
F-1	NAVMED P-5066-A	<u>Nursing Procedures Manual.</u>
F-2		Advanced Trauma Life
Support		Course Manual,
American		College of
Surgeons.		
F-3		<u>Guidelines for the</u>
<u>Prevention</u>		<u>and Control of</u>
<u>Nosocomial</u>		<u>Infections,</u>
<u>Centers for</u>		Disease
Control, U.S.		
Department of Health and Human		
Services, Public Health		
Service, Atlanta, Georgia.		

TAB G**FORMS****INDEX**

<u>NUMBER</u>	<u>FORM NUMBER</u>	<u>FORM TITLE</u>
<u>PAGE</u>		
G-1 117		Controlled Consumables/ Equipage Requisition
G-2		Drug Requisition Sheet
G-3	DD 1289	Prescription
G-4 118		Request for Clean Linen/Laundry
G-5 120	FHCZ 0401	Emergency Equipment Checklist
G-6 122		Specialty Treatment Area Log Format
G-7	SF 600	Chronological Record of Medical Care
G-8	FHCZ 0403	Cardiac Arrest Flow Sheet
G-9	NAVMED 6320/5	Serious/Very Serious Condition or Death of a Patient on a Ward
G-10	NAVMED	Incident Report Data Sheet
G-11	6010/4	Evacuation Flow Sheet
G-12	DD 599	Patients Effects Storage Tag
G-13	NAVMED 6010/8	Patients Valuables Envelope

TAB G-1

CONTROLLED CONSUMABLES/EQUIPAGE REQUISITION

FHCZ1003

Item No.	NSN Description	U/I/Qty	Serial #
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
13.			
14.			
15.			

Requisitioned by:_____

Approved by:_____

Received by:_____

TAB G-4

REQUEST FOR CLEAN LINEN/LAUNDRY

DATE _____

ITEM #	DESCRIPTION	QTY
--------	-------------	-----

- | | | |
|-----|--|--|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |
| 7. | | |
| 8. | | |
| 9. | | |
| 10. | | |
| 11. | | |
| 12. | | |
| 13. | | |
| 14. | | |
| 15. | | |
| 16. | | |
| 17. | | |
| 18. | | |
| 19. | | |
| 20. | | |

REQUESTED BY: _____ ISSUED
BY: _____

BY _____ APPROVED BY: _____ RECEIVED

TAB G-5

WATCH EMERGENCY KIT CHECK LIST
FHCZ 0401

WARD: _____

PERSON CHECKING

CHARGE NURSE	DATE	WATCH	SIGNATURE/STATUS	02/PSI DISCREPANCIES FOLLOW-UP
SIGNATURE				

AM

NOC

AM

NOC

AM

NOC

AM

NOC

AM

NOC

AM

NOC

AM

NOC

<u>DATE</u>	<u>TIME</u>	<u>NAME</u>	<u>SSN</u>	<u>COMMAND</u>
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[illegible]

[illegible]

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